

## SEQUENCE LISTING

<110> Makielski, Jonathan C.  
Ye, Bin  
Ackerman, Michael J.

<120> Sodium Channel Alpha Subunit Variants

<130> 960296.98989

<150> 60/401,018  
<151> 2002-08-02

<160> 21

<170> PatentIn version 3.2

<210> 1  
<211> 6172  
<212> DNA  
<213> Homo sapiens

<220>

<221> CDS  
<222> (1)..(6048)

<400> 1  
atg gca aac ttc cta tta cct agg ggc acc agc agc ttc cgc agg ttc 48  
Met Ala Asn Phe Leu Leu Pro Arg Gly Thr Ser Ser Phe Arg Arg Phe  
1 5 10 15  
  
aca cgg gag tcc ctg gca gcc atc gag aag cgc atg gcg gag aag caa 96  
Thr Arg Glu Ser Leu Ala Ala Ile Glu Lys Arg Met Ala Glu Lys Gln  
20 25 30  
  
gcc cgc ggc tca acc acc ttg cag gag agc cga gag ggg ctg ccc gag 144  
Ala Arg Gly Ser Thr Leu Gln Glu Ser Arg Glu Gly Leu Pro Glu  
35 40 45  
  
gag gag gct ccc cgg ccc cag ctg gac ctg cag gcc tcc aaa aag ctg 192  
Glu Glu Ala Pro Arg Pro Gln Leu Asp Leu Gln Ala Ser Lys Lys Leu  
50 55 60  
  
cca gat ctc tat ggc aat cca ccc caa gag ctc atc gga gag ccc ctg 240  
Pro Asp Leu Tyr Gly Asn Pro Pro Gln Glu Leu Ile Gly Glu Pro Leu  
65 70 75 80  
  
gag gac ctg gac ccc ttc tat agc acc caa aag act ttc atc gta ctg 288  
Glu Asp Leu Asp Pro Phe Tyr Ser Thr Gln Lys Thr Phe Ile Val Leu  
85 90 95  
  
aat aaa ggc aag acc atc ttc cgg ttc agt gcc acc aac gcc ttg tat 336  
Asn Lys Gly Lys Thr Ile Phe Arg Phe Ser Ala Thr Asn Ala Leu Tyr  
100 105 110  
  
gtc ctc agt ccc ttc cac ccc atc cgg aga gcg gct gtg aag att ctg 384  
Val Leu Ser Pro Phe His Pro Ile Arg Arg Ala Val Lys Ile Leu  
115 120 125  
  
gtt cac tcg ctc ttc aac atg ctc atc atg tgc acc atc ctc acc aac 432  
Val His Ser Leu Phe Asn Met Leu Ile Met Cys Thr Ile Leu Thr Asn  
130 135 140

tgc gtc atg gcc cag cac gac cct cca ccc tgg acc aag tat gtc Cys Val Phe Met Ala Gln His Asp Pro Pro Pro Trp Thr Lys Tyr Val 145 150 155 160	480
gag tac acc ttc acc gcc att tac acc ttt gag tct ctg gtc aag att Glu Tyr Thr Phe Thr Ala Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile 165 170 175	528
ctg gct cga ggc ttc tgc ctg cac gcg ttc act ttc ctt cgg gac cca Leu Ala Arg Gly Phe Cys Leu His Ala Phe Thr Phe Leu Arg Asp Pro 180 185 190	576
tgg aac tgg ctg gac ttt agt gtg att atc atg gca tac aca act gaa Trp Asn Trp Leu Asp Phe Ser Val Ile Ile Met Ala Tyr Thr Thr Glu 195 200 205	624
ttt gtg gac ctg ggc aat gtc tca gcc tt <sub>a</sub> cgc acc ttc cga gtc ctc Phe Val Asp Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu 210 215 220	672
cg <sub>g</sub> gcc ctg aaa act ata tca gtc att tca ggg ctg aag acc atc gtg Arg Ala Leu Lys Thr Ile Ser Val Ile Ser Gly Leu Lys Thr Ile Val 225 230 235 240	720
ggg gcc ctg atc cag tct gtg aag aag ctg gct gat gtg atg gtc ctc Gly Ala Leu Ile Gln Ser Val Lys Lys Leu Ala Asp Val Met Val Leu 245 250 255	768
aca gtc ttc tgc ctc agc gtc ttt gcc ctc atc ggc ctg cag ctc ttc Thr Val Phe Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe 260 265 270	816
atg ggc aac cta agg cac aag tgc gtg cgc aac ttc aca gcg ctc aac Met Gly Asn Leu Arg His Lys Cys Val Arg Asn Phe Thr Ala Leu Asn 275 280 285	864
ggc acc aac ggc tcc gtg gag gcc gac ggc ttg gtc tgg gaa tcc ctg Gly Thr Asn Gly Ser Val Glu Ala Asp Gly Leu Val Trp Glu Ser Leu 290 295 300	912
gac ctt tac ctc agt gat cca gaa aat tac ctg ctc aag aac ggc acc Asp Leu Tyr Leu Ser Asp Pro Glu Asn Tyr Leu Leu Lys Asn Gly Thr 305 310 315 320	960
tct gat gtg tta ctg tgt ggg aac agc tct gac gct ggg aca tgt ccg Ser Asp Val Leu Leu Cys Gly Asn Ser Ser Asp Ala Gly Thr Cys Pro 325 330 335	1008
gag ggc tac cgg tgc cta aag gca ggc gag aac ccc gac cac ggc tac Glu Gly Tyr Arg Cys Leu Lys Ala Gly Glu Asn Pro Asp His Gly Tyr 340 345 350	1056
acc agc ttc gat tcc ttt gcc tgg gcc ttt ctt gca ctc ttc cgc ctg Thr Ser Phe Asp Ser Phe Ala Trp Ala Phe Leu Ala Leu Phe Arg Leu 355 360 365	1104
atg acg cag gac tgc tgg gag cgc ctc tat cag cag acc ctc agg tcc Met Thr Gln Asp Cys Trp Glu Arg Leu Tyr Gln Gln Thr Leu Arg Ser 370 375 380	1152
gca ggg aag atc tac atg atc ttc ttc atg ctt gtc atc ttc ctg ggg Ala Gly Lys Ile Tyr Met Ile Phe Phe Met Leu Val Ile Phe Leu Gly	1200

385	390	395	400	
tcc ttc tac ctg gtg aac ctg atc ctg gcc gtg gtc gca atg gcc tat Ser Phe Tyr Leu Val Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr 405				1248
gag gag caa aac caa gcc acc atc gct gag acc gag gag aag gaa aag Glu Glu Gln Asn Gln Ala Thr Ile Ala Glu Thr Glu Glu Lys Glu Lys 420				1296
cgc ttc cag gag gcc atg gaa atg ctc aag aaa gaa cac gag gcc ctc Arg Phe Gln Glu Ala Met Glu Met Leu Lys Lys Glu His Glu Ala Leu 435				1344
acc atc agg ggt gtg gat acc gtg tcc cgt agc tcc ttg gag atg tcc Thr Ile Arg Gly Val Asp Thr Val Ser Arg Ser Ser Leu Glu Met Ser 450				1392
cct ttg gcc cca gta aac agc cat gag aga aga agc aag agg aga aaa Pro Leu Ala Pro Val Asn Ser His Glu Arg Arg Ser Lys Arg Arg Lys 465				1440
cg <sup>g</sup> atg tct tca gga act gag gag tgt ggg gag gac agg ctc ccc aag Arg Met Ser Ser Gly Thr Glu Glu Cys Gly Glu Asp Arg Leu Pro Lys 485				1488
tct gac tca gaa gat ggt ccc aga gca atg aat cat ctc agc ctc acc Ser Asp Ser Glu Asp Gly Pro Arg Ala Met Asn His Leu Ser Leu Thr 500				1536
cgt ggc ctc agc agg act tct atg aag cca cgt tcc agc cgc ggg agc Arg Gly Leu Ser Arg Thr Ser Met Lys Pro Arg Ser Ser Arg Gly Ser 515				1584
att ttc acc ttt cgc agg cga gac ctg ggt tct gaa gca gat ttt gca Ile Phe Thr Phe Arg Arg Asp Leu Gly Ser Glu Ala Asp Phe Ala 530				1632
gat gat gaa aac agc aca gc <sup>g</sup> ggg gag agc gag agc cac cac aca tca Asp Asp Glu Asn Ser Thr Ala Gly Glu Ser Glu Ser His His Thr Ser 545				1680
ctg ctg gtg ccc tgg ccc ctg cgc cg <sup>g</sup> acc agt gcc cag gga cag ccc Leu Leu Val Pro Trp Pro Leu Arg Arg Thr Ser Ala Gln Gly Gln Pro 565				1728
agt ccc gga acc tcg gct cct ggc cac gcc ctc cat ggc aaa aag aac Ser Pro Gly Thr Ser Ala Pro Gly His Ala Leu His Gly Lys Lys Asn 580				1776
agc act gtg gac tgc aat ggg gtg gtc tca tta ctg ggg gca ggc gac Ser Thr Val Asp Cys Asn Gly Val Val Ser Leu Leu Gly Ala Gly Asp 595				1824
cca gag gcc aca tcc cca gga agc cac ctc ctc cgc cct gtg atg cta Pro Glu Ala Thr Ser Pro Gly Ser His Leu Leu Arg Pro Val Met Leu 610				1872
gag cac ccg cca gac acg acc acg cca tcg gag gag cca ggc ggg ccc Glu His Pro Pro Asp Thr Thr Pro Ser Glu Glu Pro Gly Gly Pro 625				1920
cag atg ctg acc tcc cag gct ccg tgt gta gat ggc ttc gag gag cca				1968

Gln Met Leu Thr Ser Gln Ala Pro Cys Val Asp Gly Phe Glu Glu Pro			
645	650	655	
gga gca cgg cag cgg gcc ctc agc gca gtc agc gtc ctc acc agc gca			2016
Gly Ala Arg Gln Arg Ala Leu Ser Ala Val Ser Val Leu Thr Ser Ala			
660	665	670	
ctg gaa gag tta gag gag tct cgc cac aag tgt cca cca tgc tgg aac			2064
Leu Glu Glu Leu Glu Ser Arg His Lys Cys Pro Pro Cys Trp Asn			
675	680	685	
cgt ctc gcc cag cgc tac ctg atc tgg gag tgc tgc ccg ctg tgg atg			2112
Arg Leu Ala Gln Arg Tyr Leu Ile Trp Glu Cys Cys Pro Leu Trp Met			
690	695	700	
tcc atc aag cag gga gtg aag ttg gtg gtc atg gac ccg ttt act gac			2160
Ser Ile Lys Gln Gly Val Lys Leu Val Val Met Asp Pro Phe Thr Asp			
705	710	715	720
ctc acc atc act atg tgc atc gta ctc aac aca ctc ttc atg gcg ctg			2208
Leu Thr Ile Thr Met Cys Ile Val Leu Asn Thr Leu Phe Met Ala Leu			
725	730	735	
gag cac tac aac atg aca agt gaa ttc gag gag atg ctg cag gtc gga			2256
Glu His Tyr Asn Met Thr Ser Glu Phe Glu Glu Met Leu Gln Val Gly			
740	745	750	
aac ctg gtc ttc aca ggg att ttc aca gca gag atg acc ttc aag atc			2304
Asn Leu Val Phe Thr Gly Ile Phe Thr Ala Glu Met Thr Phe Lys Ile			
755	760	765	
att gcc ctc gac ccc tac tac tac ttc caa cag ggc tgg aac atc ttc			2352
Ile Ala Leu Asp Pro Tyr Tyr Phe Gln Gln Gly Trp Asn Ile Phe			
770	775	780	
gac agc atc atc gtc atc ctt agc ctc atg gag ctg ggc ctg tcc cgc			2400
Asp Ser Ile Ile Val Ile Leu Ser Leu Met Glu Leu Gly Leu Ser Arg			
785	790	795	800
atg agc aac ttg tcg gtg ctg cgc tcc ttc cgc ctg ctg cgg gtc ttc			2448
Met Ser Asn Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe			
805	810	815	
aag ctg gcc aaa tca tgg ccc acc ctg aac aca ctc atc aag atc atc			2496
Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Thr Leu Ile Lys Ile Ile			
820	825	830	
ggg aac tca gtg ggg gca ctg ggg aac ctg aca ctg gtg cta gcc atc			2544
Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile			
835	840	845	
atc gtg ttc atc ttt gct gtg ggc atg cag ctc ttt ggc aag aac			2592
Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Asn			
850	855	860	
tac tcg gag ctg agg gac agc gac tca ggc ctg ctg cct cgc tgg cac			2640
Tyr Ser Glu Leu Arg Asp Ser Asp Ser Gly Leu Leu Pro Arg Trp His			
865	870	875	880
atg atg gac ttc ttt cat gcc ttc ctc atc atc ttc cgc atc ctc tgt			2688
Met Met Asp Phe Phe His Ala Phe Leu Ile Ile Phe Arg Ile Leu Cys			
885	890	895	

gga gag tgg atc gag acc atg tgg gac tgc atg gag gtg tcg ggg cag Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ser Gly Gln 900 905 910	2736
tca tta tgc ctg ctg gtc ttc ttg ctt gtt atg gtc att ggc aac ctt Ser Leu Cys Leu Leu Val Phe Leu Leu Val Met Val Ile Gly Asn Leu 915 920 925	2784
gtg gtc ctg aat ctc ttc ctg gcc ttg ctg ctc agc tcc ttc agt gca Val Val Leu Asn Leu Phe Leu Ala Leu Leu Ser Ser Phe Ser Ala 930 935 940	2832
gac aac ctc aca gcc cct gat gag gac aga gag atg aac aac ctc cag Asp Asn Leu Thr Ala Pro Asp Glu Asp Arg Glu Met Asn Asn Leu Gln 945 950 955 960	2880
ctg gcc ctg gcc cgc atc cag agg ggc ctg cgc ttt gtc aag cgg acc Leu Ala Leu Ala Arg Ile Gln Arg Gly Leu Arg Phe Val Lys Arg Thr 965 970 975	2928
acc tgg gat ttc tgc tgt ggt ctc ctg cgg cag cgg cct cag aag ccc Thr Trp Asp Phe Cys Cys Gly Leu Leu Arg Gln Arg Pro Gln Lys Pro 980 985 990	2976
gca gcc ctt gcc gcc cag ggc cag ctg ccc agc tgc att gcc acc ccc Ala Ala Leu Ala Ala Gln Gly Gln Leu Pro Ser Cys Ile Ala Thr Pro 995 1000 1005	3024
tac tcc ccg cca ccc cca gag acg gag aag gtg cct ccc acc cgc Tyr Ser Pro Pro Pro Pro Glu Thr Glu Lys Val Pro Pro Thr Arg 1010 1015 1020	3069
aag gaa aca cgg ttt gag gaa ggc gag caa cca ggc cag ggc acc Lys Glu Thr Arg Phe Glu Glu Gly Glu Gln Pro Gly Gln Gly Thr 1025 1030 1035	3114
ccc ggg gat cca gag ccc gtg tgt gtg ccc atc gct gtg gcc gag Pro Gly Asp Pro Glu Pro Val Cys Val Pro Ile Ala Val Ala Glu 1040 1045 1050	3159
tca gac aca gat gac caa gaa gaa gat gag gag aac agc ctg ggc Ser Asp Thr Asp Asp Gln Glu Glu Asp Glu Glu Asn Ser Leu Gly 1055 1060 1065	3204
acg gag gag gag tcc agc aag cag cag gaa tcc cag cct gtg tcc Thr Glu Glu Glu Ser Ser Lys Gln Gln Glu Ser Gln Pro Val Ser 1070 1075 1080	3249
ggt ggc cca gag gcc cct ccg gat tcc agg acc tgg agc cag gtg Gly Gly Pro Glu Ala Pro Pro Asp Ser Arg Thr Trp Ser Gln Val 1085 1090 1095	3294
tca gcg act gcc tcc tct gag gcc gag gcc agt gca tct cag gcc Ser Ala Thr Ala Ser Ser Glu Ala Glu Ala Ser Ala Ser Gln Ala 1100 1105 1110	3339
gac tgg cgg cag cag tgg aaa gcg gaa ccc cag gcc cca ggg tgc Asp Trp Arg Gln Gln Trp Lys Ala Glu Pro Gln Ala Pro Gly Cys 1115 1120 1125	3384
ggt gag acc cca gag gac agt tgc tcc gag ggc agc aca gca gac Gly Glu Thr Pro Glu Asp Ser Cys Ser Glu Gly Ser Thr Ala Asp 1130 1135 1140	3429

atg acc aac acc gct gag ctc	ctg gag cag atc cct	gac ctc ggc	3474
Met Thr Asn Thr Ala Glu Leu	Leu Glu Gln Ile Pro	Asp Leu Gly	
1145	1150	1155	
cag gat gtc aag gac cca gag	gac tgc ttc act gaa	ggc tgt gtc	3519
Gln Asp Val Lys Asp Pro Glu	Asp Cys Phe Thr Glu	Gly Cys Val	
1160	1165	1170	
cgg cgc tgt ccc tgc tgt gcg	gtg gac acc aca cag	gcc cca ggg	3564
Arg Arg Cys Pro Cys Cys Ala	Val Asp Thr Thr Gln	Ala Pro Gly	
1175	1180	1185	
aag gtc tgg tgg cgg ttg cgc	aag acc tgc tac cac	atc gtg gag	3609
Lys Val Trp Trp Arg Leu Arg	Lys Thr Cys Tyr His	Ile Val Glu	
1190	1195	1200	
cac agc tgg ttc gag aca ttc	atc atc ttc atg atc	cta ctc agc	3654
His Ser Trp Phe Glu Thr Phe	Ile Ile Phe Met Ile	Leu Leu Ser	
1205	1210	1215	
agt gga gcg ctg gcc ttc gag	gac atc tac cta gag	gag cgg aag	3699
Ser Gly Ala Leu Ala Phe Glu	Asp Ile Tyr Leu Glu	Glu Arg Lys	
1220	1225	1230	
acc atc aag gtt ctg ctt gag	tat gcc gac aag atg	ttc aca tat	3744
Thr Ile Lys Val Leu Leu Glu	Tyr Ala Asp Lys Met	Phe Thr Tyr	
1235	1240	1245	
gtc ttc gtg ctg gag atg ctg	ctc aag tgg gtg gcc	tac ggc ttc	3789
Val Phe Val Leu Glu Met Leu	Leu Lys Trp Val Ala	Tyr Gly Phe	
1250	1255	1260	
aag aag tac ttc acc aat gcc	tgg tgc tgg ctc gac	ttc ctc atc	3834
Lys Lys Tyr Phe Thr Asn Ala	Trp Cys Trp Leu Asp	Phe Leu Ile	
1265	1270	1275	
gta gac gtc tct ctg gtc agc	ctg gtg gcc aac acc	ctg ggc ttt	3879
Val Asp Val Ser Leu Val Ser	Leu Val Ala Asn Thr	Leu Gly Phe	
1280	1285	1290	
gcc gag atg ggt ccc atc aag	tca ctg cgg acg ctg	cgt gca ctc	3924
Ala Glu Met Gly Pro Ile Lys	Ser Leu Arg Thr Leu	Arg Ala Leu	
1295	1300	1305	
cgt cct ctg aga gct ctg tca	cga ttt gag ggc atg	agg gtg gtg	3969
Arg Pro Leu Arg Ala Leu Ser	Arg Phe Glu Gly Met	Arg Val Val	
1310	1315	1320	
gtc aat gcc ctg gtg ggc gcc	atc ccg tcc atc atg	aac gtc ctc	4014
Val Asn Ala Leu Val Gly Ala	Ile Pro Ser Ile Met	Asn Val Leu	
1325	1330	1335	
ctc gtc tgc ctc atc ttc tgg	ctc atc ttc agc atc	atg ggc gtg	4059
Leu Val Cys Leu Ile Phe Trp	Leu Ile Phe Ser Ile	Met Gly Val	
1340	1345	1350	
aac ctc ttt gcg ggg aag ttt	ggg agg tgc atc aac	cag aca gag	4104
Asn Leu Phe Ala Gly Lys Phe	Gly Arg Cys Ile Asn	Gln Thr Glu	
1355	1360	1365	
gga gac ttg cct ttg aac tac	acc atc gtg aac aac	aag agc cag	4149
Gly Asp Leu Pro Leu Asn Tyr	Thr Ile Val Asn Asn	Lys Ser Gln	

1370	1375	1380	
tgt gag tcc ttg aac ttg acc	gga gaa ttg tac tgg	acc aag gtg	4194
Cys Glu Ser Leu Asn Leu Thr	Gly Glu Leu Tyr Trp	Thr Lys Val	
1385	1390	1395	
aaa gtc aac ttt gac aac gtg	ggg gcc ggg tac ctg	gcc ctt ctg	4239
Lys Val Asn Phe Asp Asn Val	Gly Ala Gly Tyr Leu	Ala Leu Leu	
1400	1405	1410	
cag gtg gca aca ttt aaa ggc	tgg atg gac att atg	tat gca gct	4284
Gln Val Ala Thr Phe Lys Gly	Trp Met Asp Ile Met	Tyr Ala Ala	
1415	1420	1425	
gtg gac tcc agg ggg tat gaa	gag cag cct cag tgg	gaa tac aac	4329
Val Asp Ser Arg Gly Tyr Glu	Glu Gln Pro Gln Trp	Glu Tyr Asn	
1430	1435	1440	
ctc tac atg tac atc tat ttt	gtc att ttc atc atc	ttt ggg tct	4374
Leu Tyr Met Tyr Ile Tyr Phe	Val Ile Phe Ile Ile	Phe Gly Ser	
1445	1450	1455	
ttc ttc acc ctg aac ctc ttt	att ggt gtc atc att	gac aac ttc	4419
Phe Phe Thr Leu Asn Leu Phe	Ile Gly Val Ile Ile	Asp Asn Phe	
1460	1465	1470	
aac caa cag aag aaa aag tta	ggg ggc cag gac atc	ttc atg aca	4464
Asn Gln Gln Lys Lys Lys Leu	Gly Gly Gln Asp Ile	Phe Met Thr	
1475	1480	1485	
gag gag cag aag aag tac tac	aat gcc atg aag aag	ctg ggc tcc	4509
Glu Glu Gln Lys Lys Tyr Tyr	Asn Ala Met Lys Lys	Leu Gly Ser	
1490	1495	1500	
aag aag ccc cag aag ccc atc	cca cggtccc ctg aac	aag tac cag	4554
Lys Lys Pro Gln Lys Pro Ile	Pro Arg Pro Leu Asn	Lys Tyr Gln	
1505	1510	1515	
ggc ttc ata ttc gac att gtg	acc aag cag gcc ttt	gac gtc acc	4599
Gly Phe Ile Phe Asp Ile Val	Thr Lys Gln Ala Phe	Asp Val Thr	
1520	1525	1530	
atc atg ttt ctg atc tgc ttg	aat atg gtg acc atg	atg gtg gag	4644
Ile Met Phe Leu Ile Cys Leu	Asn Met Val Thr Met	Met Val Glu	
1535	1540	1545	
aca gat gac caa agt cct gag	aaa atc aac atc ttg	gcc aag atc	4689
Thr Asp Asp Gln Ser Pro Glu	Lys Ile Asn Ile Leu	Ala Lys Ile	
1550	1555	1560	
aac ctg ctc ttt gtg gcc atc	ttc aca ggc gag tgt	att gtc aag	4734
Asn Leu Leu Phe Val Ala Ile	Phe Thr Gly Glu Cys	Ile Val Lys	
1565	1570	1575	
ctg gct gcc ctg cgc cac tac	tac ttc acc aac agc	tgg aat atc	4779
Leu Ala Ala Leu Arg His Tyr	Tyr Phe Thr Asn Ser	Trp Asn Ile	
1580	1585	1590	
ttc gac ttc gtg gtt gtc atc	ctc tcc atc gtg ggc	act gtg ctc	4824
Phe Asp Phe Val Val Val Ile	Leu Ser Ile Val Gly	Thr Val Leu	
1595	1600	1605	
tcg gac atc atc cag aag tac	ttc ttc tcc ccg acg	ctc ttc cga	4869

Ser	Asp	Ile	Ile	Gln	Lys	Tyr	Phe	Phe	Ser	Pro	Thr	Leu	Phe	Arg	
1610							1615					1620			
gtc	atc	cgc	ctg	gcc	cga	ata	ggc	cgc	atc	ctc	aga	ctg	atc	cga	4914
Val	Ile	Arg	Leu	Ala	Arg	Ile	Gly	Arg	Ile	Leu	Arg	Leu	Ile	Arg	
1625							1630					1635			
ggg	gcc	aag	ggg	atc	cgc	acg	ctg	ctc	ttt	gcc	ctc	atg	atg	tcc	4959
Gly	Ala	Lys	Gly	Ile	Arg	Thr	Leu	Leu	Phe	Ala	Leu	Met	Met	Ser	
1640							1645					1650			
ctg	cct	gcc	ctc	ttc	aac	atc	ggg	ctg	ctg	ctc	ttc	ctc	gtc	atg	5004
Leu	Pro	Ala	Leu	Phe	Asn	Ile	Gly	Leu	Leu	Leu	Phe	Leu	Val	Met	
1655							1660					1665			
ttc	atc	tac	tcc	atc	ttt	ggc	atg	gcc	aac	ttc	gct	tat	gtc	aag	5049
Phe	Ile	Tyr	Ser	Ile	Phe	Gly	Met	Ala	Asn	Phe	Ala	Tyr	Val	Lys	
1670							1675					1680			
tgg	gag	gct	ggc	atc	gac	gac	atg	ttc	aac	ttc	cag	acc	ttc	gcc	5094
Trp	Glu	Ala	Gly	Ile	Asp	Asp	Met	Phe	Asn	Phe	Gln	Thr	Phe	Ala	
1685							1690					1695			
aac	agc	atg	ctg	tgc	ctc	ttc	cag	atc	acc	acg	tcg	gcc	ggc	tgg	5139
Asn	Ser	Met	Leu	Cys	Leu	Phe	Gln	Ile	Thr	Thr	Ser	Ala	Gly	Trp	
1700							1705					1710			
gat	ggc	ctc	ctc	agc	ccc	atc	ctc	aatc	act	ggg	ccg	ccc	tac	tgc	5184
Asp	Gly	Leu	Leu	Ser	Pro	Ile	Leu	Asn	Thr	Gly	Pro	Pro	Tyr	Cys	
1715							1720					1725			
gac	ccc	act	ctg	ccc	aac	agc	aat	ggc	tct	cgg	ggg	gac	tgc	ggg	5229
Asp	Pro	Thr	Leu	Pro	Asn	Ser	Asn	Gly	Ser	Arg	Gly	Asp	Cys	Gly	
1730							1735					1740			
agc	cca	gcc	gtg	ggc	atc	ctc	ttc	ttc	acc	acc	tac	atc	atc	atc	5274
Ser	Pro	Ala	Val	Gly	Ile	Leu	Phe	Phe	Thr	Thr	Tyr	Ile	Ile	Ile	
1745							1750					1755			
tcc	ttc	ctc	atc	gtg	gtc	aac	atg	tac	att	gcc	atc	atc	ctg	gag	5319
Ser	Phe	Leu	Ile	Val	Val	Asn	Met	Tyr	Ile	Ala	Ile	Ile	Leu	Glu	
1760							1765					1770			
aac	ttc	agc	gtg	gcc	acg	gag	gag	agc	acc	gag	ccc	ctg	agt	gag	5364
Asn	Phe	Ser	Val	Ala	Thr	Glu	Glu	Ser	Thr	Glu	Pro	Leu	Ser	Glu	
1775							1780					1785			
gac	gac	ttc	gat	atg	ttc	tat	gag	atc	tgg	gag	aaa	ttt	gac	cca	5409
Asp	Asp	Phe	Asp	Met	Phe	Tyr	Glu	Ile	Trp	Glu	Lys	Phe	Asp	Pro	
1790							1795					1800			
gag	gcc	act	cag	ttt	att	gag	tat	tcg	gtc	ctg	tct	gac	ttt	gcc	5454
Glu	Ala	Thr	Gln	Phe	Ile	Glu	Tyr	Ser	Val	Leu	Ser	Asp	Phe	Ala	
1805							1810					1815			
gat	gcc	ctg	tct	gag	cca	ctc	cgt	atc	gcc	aag	ccc	aac	cag	ata	5499
Asp	Ala	Leu	Ser	Glu	Pro	Leu	Arg	Ile	Ala	Lys	Pro	Asn	Gln	Ile	
1820							1825					1830			
agc	ctc	atc	aac	atg	gac	ctg	ccc	atg	gtg	agt	ggg	gac	cgc	atc	5544
Ser	Leu	Ile	Asn	Met	Asp	Leu	Pro	Met	Val	Ser	Gly	Asp	Arg	Ile	
1835							1840					1845			

cat tgc atg gac att ctc ttt	gcc ttc acc aaa agg	gtc ctg ggg	5589
His Cys Met Asp Ile Leu Phe	Ala Phe Thr Lys Arg	Val Leu Gly	
1850	1855	1860	
gag tct ggg gag atg gac gcc	ctg aag atc cag atg	gag gag aag	5634
Glu Ser Gly Glu Met Asp Ala	Leu Lys Ile Gln Met	Glu Glu Lys	
1865	1870	1875	
ttc atg gca gcc aac cca tcc	aag atc tcc tac gag	ccc atc acc	5679
Phe Met Ala Ala Asn Pro Ser	Lys Ile Ser Tyr Glu	Pro Ile Thr	
1880	1885	1890	
acc aca ctc cgg cgc aag cac	gaa gag gtg tcg gcc	atg gtt atc	5724
Thr Thr Leu Arg Arg Lys His	Glu Glu Val Ser Ala	Met Val Ile	
1895	1900	1905	
cag aga gcc ttc cgc agg cac	ctg ctg caa cgc tct	ttg aag cat	5769
Gln Arg Ala Phe Arg Arg His	Leu Leu Gln Arg Ser	Leu Lys His	
1910	1915	1920	
gcc tcc ttc ctc ttc cgt cag	cag gcg ggc agc ggc	ctc tcc gaa	5814
Ala Ser Phe Leu Phe Arg Gln	Gln Ala Gly Ser Gly	Leu Ser Glu	
1925	1930	1935	
gag gat gcc cct gag cga gag	ggc ctc atc gcc tac	gtg atg agt	5859
Glu Asp Ala Pro Glu Arg Glu	Gly Leu Ile Ala Tyr	Val Met Ser	
1940	1945	1950	
gag aac ttc tcc cga ccc ctt	ggc cca ccc tcc agc	tcc tcc atc	5904
Glu Asn Phe Ser Arg Pro Leu	Gly Pro Pro Ser Ser	Ser Ser Ile	
1955	1960	1965	
tcc tcc act tcc ttc cca ccc	tcc tat gac agt gtc	act aga gcc	5949
Ser Ser Thr Ser Phe Pro Pro	Ser Tyr Asp Ser Val	Thr Arg Ala	
1970	1975	1980	
acc agc gat aac ctc cag gtg	cgg ggg tct gac tac	agc cac agt	5994
Thr Ser Asp Asn Leu Gln Val	Arg Gly Ser Asp Tyr	Ser His Ser	
1985	1990	1995	
gaa gat ctc gcc gac ttc ccc	cct tct ccg gac agg	gac cgt gag	6039
Glu Asp Leu Ala Asp Phe Pro	Pro Ser Pro Asp Arg	Asp Arg Glu	
2000	2005	2010	
tcc atc gtg tgaggctcggtctggc caggacacac tgaaaagcag			6088
Ser Ile Val			
2015			
cctttttcac catggcaaac ctaaatgcag tcagtcamaa accagcctgg	ggccttcctg		6148
gctttgggag taagaaatgg gcct			6172

<210> 2  
<211> 2016  
<212> PRT  
<213> Homo sapiens

<400> 2

Met Ala Asn Phe Leu Leu Pro Arg Gly Thr Ser Ser Phe Arg Arg Phe  
1 5 10 15

Thr Arg Glu Ser Leu Ala Ala Ile Glu Lys Arg Met Ala Glu Lys Gln  
20 25 30

Ala Arg Gly Ser Thr Thr Leu Gln Glu Ser Arg Glu Gly Leu Pro Glu  
35 40 45

Glu Glu Ala Pro Arg Pro Gln Leu Asp Leu Gln Ala Ser Lys Lys Leu  
50 55 60

Pro Asp Leu Tyr Gly Asn Pro Pro Gln Glu Leu Ile Gly Glu Pro Leu  
65 70 75 80

Glu Asp Leu Asp Pro Phe Tyr Ser Thr Gln Lys Thr Phe Ile Val Leu  
85 90 95

Asn Lys Gly Lys Thr Ile Phe Arg Phe Ser Ala Thr Asn Ala Leu Tyr  
100 105 110

Val Leu Ser Pro Phe His Pro Ile Arg Arg Ala Ala Val Lys Ile Leu  
115 120 125

Val His Ser Leu Phe Asn Met Leu Ile Met Cys Thr Ile Leu Thr Asn  
130 135 140

Cys Val Phe Met Ala Gln His Asp Pro Pro Trp Thr Lys Tyr Val  
145 150 155 160

Glu Tyr Thr Phe Thr Ala Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile  
165 170 175

Leu Ala Arg Gly Phe Cys Leu His Ala Phe Thr Phe Leu Arg Asp Pro  
180 185 190

Trp Asn Trp Leu Asp Phe Ser Val Ile Ile Met Ala Tyr Thr Thr Glu  
195 200 205

Phe Val Asp Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu  
210 215 220

Arg Ala Leu Lys Thr Ile Ser Val Ile Ser Gly Leu Lys Thr Ile Val  
225 230 235 240

Gly Ala Leu Ile Gln Ser Val Lys Lys Leu Ala Asp Val Met Val Leu  
245 250 255

Thr Val Phe Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe  
260 265 270

Met Gly Asn Leu Arg His Lys Cys Val Arg Asn Phe Thr Ala Leu Asn  
275 280 285

Gly Thr Asn Gly Ser Val Glu Ala Asp Gly Leu Val Trp Glu Ser Leu  
290 295 300

Asp Leu Tyr Leu Ser Asp Pro Glu Asn Tyr Leu Leu Lys Asn Gly Thr  
305 310 315 320

Ser Asp Val Leu Leu Cys Gly Asn Ser Ser Asp Ala Gly Thr Cys Pro  
325 330 335

Glu Gly Tyr Arg Cys Leu Lys Ala Gly Glu Asn Pro Asp His Gly Tyr  
340 345 350

Thr Ser Phe Asp Ser Phe Ala Trp Ala Phe Leu Ala Leu Phe Arg Leu  
355 360 365

Met Thr Gln Asp Cys Trp Glu Arg Leu Tyr Gln Gln Thr Leu Arg Ser  
370 375 380

Ala Gly Lys Ile Tyr Met Ile Phe Phe Met Leu Val Ile Phe Leu Gly  
385 390 395 400

Ser Phe Tyr Leu Val Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr  
405 410 415

Glu Glu Gln Asn Gln Ala Thr Ile Ala Glu Thr Glu Glu Lys Glu Lys  
420 425 430

Arg Phe Gln Glu Ala Met Glu Met Leu Lys Lys Glu His Glu Ala Leu  
435 440 445

Thr Ile Arg Gly Val Asp Thr Val Ser Arg Ser Ser Leu Glu Met Ser  
450 455 460

Pro Leu Ala Pro Val Asn Ser His Glu Arg Arg Ser Lys Arg Arg Lys  
465 470 475 480

Arg Met Ser Ser Gly Thr Glu Glu Cys Gly Glu Asp Arg Leu Pro Lys  
485 490 495

Ser Asp Ser Glu Asp Gly Pro Arg Ala Met Asn His Leu Ser Leu Thr  
500 505 510

Arg Gly Leu Ser Arg Thr Ser Met Lys Pro Arg Ser Ser Arg Gly Ser

515

520

525

Ile Phe Thr Phe Arg Arg Arg Asp Leu Gly Ser Glu Ala Asp Phe Ala  
530 535 540

Asp Asp Glu Asn Ser Thr Ala Gly Glu Ser Glu Ser His His Thr Ser  
545 550 555 560

Leu Leu Val Pro Trp Pro Leu Arg Arg Thr Ser Ala Gln Gly Gln Pro  
565 570 575

Ser Pro Gly Thr Ser Ala Pro Gly His Ala Leu His Gly Lys Lys Asn  
580 585 590

Ser Thr Val Asp Cys Asn Gly Val Val Ser Leu Leu Gly Ala Gly Asp  
595 600 605

Pro Glu Ala Thr Ser Pro Gly Ser His Leu Leu Arg Pro Val Met Leu  
610 615 620

Glu His Pro Pro Asp Thr Thr Thr Pro Ser Glu Glu Pro Gly Gly Pro  
625 630 635 640

Gln Met Leu Thr Ser Gln Ala Pro Cys Val Asp Gly Phe Glu Glu Pro  
645 650 655

Gly Ala Arg Gln Arg Ala Leu Ser Ala Val Ser Val Leu Thr Ser Ala  
660 665 670

Leu Glu Glu Leu Glu Ser Arg His Lys Cys Pro Pro Cys Trp Asn  
675 680 685

Arg Leu Ala Gln Arg Tyr Leu Ile Trp Glu Cys Cys Pro Leu Trp Met  
690 695 700

Ser Ile Lys Gln Gly Val Lys Leu Val Val Met Asp Pro Phe Thr Asp  
705 710 715 720

Leu Thr Ile Thr Met Cys Ile Val Leu Asn Thr Leu Phe Met Ala Leu  
725 730 735

Glu His Tyr Asn Met Thr Ser Glu Phe Glu Glu Met Leu Gln Val Gly  
740 745 750

Asn Leu Val Phe Thr Gly Ile Phe Thr Ala Glu Met Thr Phe Lys Ile  
755 760 765

Ile Ala Leu Asp Pro Tyr Tyr Tyr Phe Gln Gln Gly Trp Asn Ile Phe  
770 775 780

Asp Ser Ile Ile Val Ile Leu Ser Leu Met Glu Leu Gly Leu Ser Arg  
785 790 795 800

Met Ser Asn Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe  
805 810 815

Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Thr Leu Ile Lys Ile Ile  
820 825 830

Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile  
835 840 845

Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Asn  
850 855 860

Tyr Ser Glu Leu Arg Asp Ser Asp Ser Gly Leu Leu Pro Arg Trp His  
865 870 875 880

Met Met Asp Phe Phe His Ala Phe Leu Ile Ile Phe Arg Ile Leu Cys  
885 890 895

Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ser Gly Gln  
900 905 910

Ser Leu Cys Leu Leu Val Phe Leu Leu Val Met Val Ile Gly Asn Leu  
915 920 925

Val Val Leu Asn Leu Phe Leu Ala Leu Leu Ser Ser Phe Ser Ala  
930 935 940

Asp Asn Leu Thr Ala Pro Asp Glu Asp Arg Glu Met Asn Asn Leu Gln  
945 950 955 960

Leu Ala Leu Ala Arg Ile Gln Arg Gly Leu Arg Phe Val Lys Arg Thr  
965 970 975

Thr Trp Asp Phe Cys Cys Gly Leu Leu Arg Gln Arg Pro Gln Lys Pro  
980 985 990

Ala Ala Leu Ala Ala Gln Gly Gln Leu Pro Ser Cys Ile Ala Thr Pro  
995 1000 1005

Tyr Ser Pro Pro Pro Pro Glu Thr Glu Lys Val Pro Pro Thr Arg  
1010 1015 1020

Lys Glu Thr Arg Phe Glu Glu Gly Glu Gln Pro Gly Gln Gly Thr  
1025 1030 1035

Pro Gly Asp Pro Glu Pro Val Cys Val Pro Ile Ala Val Ala Glu  
1040 1045 1050

Ser Asp Thr Asp Asp Gln Glu Glu Asp Glu Glu Asn Ser Leu Gly  
1055 1060 1065

Thr Glu Glu Glu Ser Ser Lys Gln Gln Glu Ser Gln Pro Val Ser  
1070 1075 1080

Gly Gly Pro Glu Ala Pro Pro Asp Ser Arg Thr Trp Ser Gln Val  
1085 1090 1095

Ser Ala Thr Ala Ser Ser Glu Ala Glu Ala Ser Ala Ser Gln Ala  
1100 1105 1110

Asp Trp Arg Gln Gln Trp Lys Ala Glu Pro Gln Ala Pro Gly Cys  
1115 1120 1125

Gly Glu Thr Pro Glu Asp Ser Cys Ser Glu Gly Ser Thr Ala Asp  
1130 1135 1140

Met Thr Asn Thr Ala Glu Leu Leu Glu Gln Ile Pro Asp Leu Gly  
1145 1150 1155

Gln Asp Val Lys Asp Pro Glu Asp Cys Phe Thr Glu Gly Cys Val  
1160 1165 1170

Arg Arg Cys Pro Cys Cys Ala Val Asp Thr Thr Gln Ala Pro Gly  
1175 1180 1185

Lys Val Trp Trp Arg Leu Arg Lys Thr Cys Tyr His Ile Val Glu  
1190 1195 1200

His Ser Trp Phe Glu Thr Phe Ile Ile Phe Met Ile Leu Leu Ser  
1205 1210 1215

Ser Gly Ala Leu Ala Phe Glu Asp Ile Tyr Leu Glu Glu Arg Lys  
1220 1225 1230

Thr Ile Lys Val Leu Leu Glu Tyr Ala Asp Lys Met Phe Thr Tyr  
1235 1240 1245

Val Phe Val Leu Glu Met Leu Leu Lys Trp Val Ala Tyr Gly Phe  
1250 1255 1260

Lys Lys Tyr Phe Thr Asn Ala Trp Cys Trp Leu Asp Phe Leu Ile  
1265 1270 1275

Val Asp Val Ser Leu Val Ser Leu Val Ala Asn Thr Leu Gly Phe  
1280 1285 1290

Ala Glu Met Gly Pro Ile Lys Ser Leu Arg Thr Leu Arg Ala Leu  
1295 1300 1305

Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met Arg Val Val  
1310 1315 1320

Val Asn Ala Leu Val Gly Ala Ile Pro Ser Ile Met Asn Val Leu  
1325 1330 1335

Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly Val  
1340 1345 1350

Asn Leu Phe Ala Gly Lys Phe Gly Arg Cys Ile Asn Gln Thr Glu  
1355 1360 1365

Gly Asp Leu Pro Leu Asn Tyr Thr Ile Val Asn Asn Lys Ser Gln  
1370 1375 1380

Cys Glu Ser Leu Asn Leu Thr Gly Glu Leu Tyr Trp Thr Lys Val  
1385 1390 1395

Lys Val Asn Phe Asp Asn Val Gly Ala Gly Tyr Leu Ala Leu Leu  
1400 1405 1410

Gln Val Ala Thr Phe Lys Gly Trp Met Asp Ile Met Tyr Ala Ala  
1415 1420 1425

Val Asp Ser Arg Gly Tyr Glu Glu Gln Pro Gln Trp Glu Tyr Asn  
1430 1435 1440

Leu Tyr Met Tyr Ile Tyr Phe Val Ile Phe Ile Ile Phe Gly Ser  
1445 1450 1455

Phe Phe Thr Leu Asn Leu Phe Ile Gly Val Ile Ile Asp Asn Phe  
1460 1465 1470

Asn Gln Gln Lys Lys Lys Leu Gly Gly Gln Asp Ile Phe Met Thr  
1475 1480 1485

Glu Glu Gln Lys Lys Tyr Tyr Asn Ala Met Lys Lys Leu Gly Ser

1490

1495

1500

Lys Lys Pro Gln Lys Pro Ile Pro Arg Pro Leu Asn Lys Tyr Gln  
1505 1510 1515

Gly Phe Ile Phe Asp Ile Val Thr Lys Gln Ala Phe Asp Val Thr  
1520 1525 1530

Ile Met Phe Leu Ile Cys Leu Asn Met Val Thr Met Met Val Glu  
1535 1540 1545

Thr Asp Asp Gln Ser Pro Glu Lys Ile Asn Ile Leu Ala Lys Ile  
1550 1555 1560

Asn Leu Leu Phe Val Ala Ile Phe Thr Gly Glu Cys Ile Val Lys  
1565 1570 1575

Leu Ala Ala Leu Arg His Tyr Tyr Phe Thr Asn Ser Trp Asn Ile  
1580 1585 1590

Phe Asp Phe Val Val Val Ile Leu Ser Ile Val Gly Thr Val Leu  
1595 1600 1605

Ser Asp Ile Ile Gln Lys Tyr Phe Phe Ser Pro Thr Leu Phe Arg  
1610 1615 1620

Val Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Ile Arg  
1625 1630 1635

Gly Ala Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser  
1640 1645 1650

Leu Pro Ala Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met  
1655 1660 1665

Phe Ile Tyr Ser Ile Phe Gly Met Ala Asn Phe Ala Tyr Val Lys  
1670 1675 1680

Trp Glu Ala Gly Ile Asp Asp Met Phe Asn Phe Gln Thr Phe Ala  
1685 1690 1695

Asn Ser Met Leu Cys Leu Phe Gln Ile Thr Thr Ser Ala Gly Trp  
1700 1705 1710

Asp Gly Leu Leu Ser Pro Ile Leu Asn Thr Gly Pro Pro Tyr Cys  
1715 1720 1725

Asp Pro Thr Leu Pro Asn Ser Asn Gly Ser Arg Gly Asp Cys Gly  
1730 1735 1740

Ser Pro Ala Val Gly Ile Leu Phe Phe Thr Thr Tyr Ile Ile Ile  
1745 1750 1755

Ser Phe Leu Ile Val Val Asn Met Tyr Ile Ala Ile Ile Leu Glu  
1760 1765 1770

Asn Phe Ser Val Ala Thr Glu Glu Ser Thr Glu Pro Leu Ser Glu  
1775 1780 1785

Asp Asp Phe Asp Met Phe Tyr Glu Ile Trp Glu Lys Phe Asp Pro  
1790 1795 1800

Glu Ala Thr Gln Phe Ile Glu Tyr Ser Val Leu Ser Asp Phe Ala  
1805 1810 1815

Asp Ala Leu Ser Glu Pro Leu Arg Ile Ala Lys Pro Asn Gln Ile  
1820 1825 1830

Ser Leu Ile Asn Met Asp Leu Pro Met Val Ser Gly Asp Arg Ile  
1835 1840 1845

His Cys Met Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly  
1850 1855 1860

Glu Ser Gly Glu Met Asp Ala Leu Lys Ile Gln Met Glu Glu Lys  
1865 1870 1875

Phe Met Ala Ala Asn Pro Ser Lys Ile Ser Tyr Glu Pro Ile Thr  
1880 1885 1890

Thr Thr Leu Arg Arg Lys His Glu Glu Val Ser Ala Met Val Ile  
1895 1900 1905

Gln Arg Ala Phe Arg Arg His Leu Leu Gln Arg Ser Leu Lys His  
1910 1915 1920

Ala Ser Phe Leu Phe Arg Gln Gln Ala Gly Ser Gly Leu Ser Glu  
1925 1930 1935

Glu Asp Ala Pro Glu Arg Glu Gly Leu Ile Ala Tyr Val Met Ser  
1940 1945 1950

Glu Asn Phe Ser Arg Pro Leu Gly Pro Pro Ser Ser Ser Ser Ile  
1955 1960 1965

Ser Ser Thr Ser Phe Pro Pro Ser Tyr Asp Ser Val Thr Arg Ala  
1970 1975 1980

Thr Ser Asp Asn Leu Gln Val Arg Gly Ser Asp Tyr Ser His Ser  
1985 1990 1995

Glu Asp Leu Ala Asp Phe Pro Pro Ser Pro Asp Arg Asp Arg Glu  
2000 2005 2010

Ser Ile Val  
2015

<210> 3  
<211> 6172  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (1)..(6048)

atg gca aac ttc cta tta cct agg ggc acc agc agc ttc cgc agg ttc Met Ala Asn Phe Leu Leu Pro Arg Gly Thr Ser Ser Phe Arg Arg Phe 1 5 10 15	48
aca cgg gag tcc ctg gca gcc atc gag aag cgc atg gcg gag aag caa Thr Arg Glu Ser Leu Ala Ala Ile Glu Lys Arg Met Ala Glu Lys Gln 20 25 30	96
gcc cgc ggc tca acc acc ttg cag gag agc cga gag ggg ctg ccc gag Ala Arg Gly Ser Thr Thr Leu Gln Glu Ser Arg Glu Gly Leu Pro Glu 35 40 45	144
gag gag gct ccc cgg ccc cag ctg gac ctg cag gcc tcc aaa aag ctg Glu Glu Ala Pro Arg Pro Gln Leu Asp Leu Gln Ala Ser Lys Lys Leu 50 55 60	192
cca gat ctc tat ggc aat cca ccc caa gag ctc atc gga gag ccc ctg Pro Asp Leu Tyr Gly Asn Pro Pro Gln Glu Leu Ile Gly Glu Pro Leu 65 70 75 80	240
gag gac ctg gac ccc ttc tat agc acc caa aag act ttc atc gta ctg Glu Asp Leu Asp Pro Phe Tyr Ser Thr Gln Lys Thr Phe Ile Val Leu 85 90 95	288
aat aaa ggc aag acc atc ttc cgg ttc agt gcc acc aac gcc ttg tat Asn Lys Gly Lys Thr Ile Phe Arg Phe Ser Ala Thr Asn Ala Leu Tyr 100 105 110	336
gtc ctc agt ccc ttc cac ccc atc cgg aga gca gct gtg aag att ctg Val Leu Ser Pro Phe His Pro Ile Arg Arg Ala Ala Val Lys Ile Leu 115 120 125	384
gtt cac tcg ctc ttc aac atg ctc atc atg tgc acc atc ctc acc aac Val His Ser Leu Phe Asn Met Leu Ile Met Cys Thr Ile Leu Thr Asn 130 135 140	432

tgc gtg ttc atg gcc cag cac gac cct cca ccc tgg acc aag tat gtc Cys Val Phe Met Ala Gln His Asp Pro Pro Pro Trp Thr Lys Tyr Val 145 150 155 160	480
gag tac acc ttc acc gcc att tac acc ttt gag tct ctg gtc aag att Glu Tyr Thr Phe Thr Ala Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile 165 170 175	528
ctg gct cga ggc ttc tgc ctg cac gcg ttc act ttc ctt cggt gac cca Leu Ala Arg Gly Phe Cys Leu His Ala Phe Thr Phe Leu Arg Asp Pro 180 185 190	576
tgg aac tgg ctg gac ttt agt gtg att atc atg gca tac aca act gaa Trp Asn Trp Leu Asp Phe Ser Val Ile Ile Met Ala Tyr Thr Thr Glu 195 200 205	624
ttt gtg gac ctg ggc aat gtc tca gcc tta cgc acc ttc cga gtc ctc Phe Val Asp Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu 210 215 220	672
cgg gcc ctg aaa act ata tca gtc att tca ggg ctg aag acc atc gtg Arg Ala Leu Lys Thr Ile Ser Val Ile Ser Gly Leu Lys Thr Ile Val 225 230 235 240	720
ggg gcc ctg atc cag tct gtg aag aag ctg gct gat gtg atg gtc ctc Gly Ala Leu Ile Gln Ser Val Lys Lys Leu Ala Asp Val Met Val Leu 245 250 255	768
aca gtc ttc tgc ctc agc gtc ttt gcc ctc atc ggc ctg cag ctc ttc Thr Val Phe Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe 260 265 270	816
atg ggc aac cta agg cac aag tgc gtg cgc aac ttc aca gcg ctc aac Met Gly Asn Leu Arg His Lys Cys Val Arg Asn Phe Thr Ala Leu Asn 275 280 285	864
ggc acc aac ggc tcc gtg gag gcc gac ggc ttg gtc tgg gaa tcc ctg Gly Thr Asn Gly Ser Val Glu Ala Asp Gly Leu Val Trp Glu Ser Leu 290 295 300	912
gac ctt tac ctc agt gat cca gaa aat tac ctg ctc aag aac ggc acc Asp Leu Tyr Leu Ser Asp Pro Glu Asn Tyr Leu Leu Lys Asn Gly Thr 305 310 315 320	960
tct gat gtg tta ctg tgt ggg aac agc tct gac gct ggg aca tgt ccg Ser Asp Val Leu Leu Cys Gly Asn Ser Ser Asp Ala Gly Thr Cys Pro 325 330 335	1008
gag ggc tac cgg tgc cta aag gca ggc gag aac ccc gac cac ggc tac Glu Gly Tyr Arg Cys Leu Lys Ala Gly Glu Asn Pro Asp His Gly Tyr 340 345 350	1056
acc agc ttc gat tcc ttt gcc tgg gcc ttt ctt gca ctc ttc cgc ctg Thr Ser Phe Asp Ser Phe Ala Trp Ala Phe Leu Ala Leu Phe Arg Leu 355 360 365	1104
atg acg cag gac tgc tgg gag cgc ctc tat cag cag acc ctc agg tcc Met Thr Gln Asp Cys Trp Glu Arg Leu Tyr Gln Gln Thr Leu Arg Ser 370 375 380	1152
gca ggg aag atc tac atg atc ttc ttc atg ctt gtc atc ttc ctg ggg Ala Gly Lys Ile Tyr Met Ile Phe Phe Met Leu Val Ile Phe Leu Gly	1200

385	390	395	400	
tcc ttc tac ctg gtg aac ctg atc ctg gcc gtg gtc gca atg gcc tat Ser Phe Tyr Leu Val Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr 405		410	415	1248
gag gag caa aac caa gcc acc atc gct gag acc gag gag aag gaa aag Glu Glu Gln Asn Gln Ala Thr Ile Ala Glu Thr Glu Glu Lys Glu Lys 420	425		430	1296
cgc ttc cag gag gcc atg gaa atg ctc aag aaa gaa cac gag gcc ctc Arg Phe Gln Glu Ala Met Glu Met Leu Lys Lys Glu His Glu Ala Leu 435	440	445		1344
acc atc agg ggt gtg gat acc gtg tcc cgt agc tcc ttg gag atg tcc Thr Ile Arg Gly Val Asp Thr Val Ser Arg Ser Ser Leu Glu Met Ser 450	455	460		1392
cct ttg gcc cca gta aac agc cat gag aga aga agc aag agg aga aaa Pro Leu Ala Pro Val Asn Ser His Glu Arg Arg Ser Lys Arg Arg Lys 465	470	475	480	1440
cg <sup>g</sup> atg tct tca gga act gag gag tgt ggg gag gac agg ctc ccc aag Arg Met Ser Ser Gly Thr Glu Glu Cys Gly Glu Asp Arg Leu Pro Lys 485	490		495	1488
tct gac tca gaa gat ggt ccc aga gca atg aat cat ctc agc ctc acc Ser Asp Ser Glu Asp Gly Pro Arg Ala Met Asn His Leu Ser Leu Thr 500	505		510	1536
cgt ggc ctc agc agg act tct atg aag cca cgt tcc agc cgc ggg agc Arg Gly Leu Ser Arg Thr Ser Met Lys Pro Arg Ser Ser Arg Gly Ser 515	520	525		1584
att ttc acc ttt cgc agg cga gac ctg ggt tct gaa gca gat ttt gca Ile Phe Thr Phe Arg Arg Arg Asp Leu Gly Ser Glu Ala Asp Phe Ala 530	535	540		1632
gat gat gaa aac agc aca gcg ggg gag agc gag agc cac cgc aca tca Asp Asp Glu Asn Ser Thr Ala Gly Glu Ser Glu Ser His Arg Thr Ser 545	550	555	560	1680
ctg ctg gtg ccc tgg ccc ctg cgc cgg acc agt gcc cag gga cag ccc Leu Leu Val Pro Trp Pro Leu Arg Arg Thr Ser Ala Gln Gly Gln Pro 565	570		575	1728
agt ccc gga acc tcg gct cct ggc cac gcc ctc cat ggc aaa aag aac Ser Pro Gly Thr Ser Ala Pro Gly His Ala Leu His Gly Lys Lys Asn 580	585	590		1776
agc act gtg gac tgc aat ggg gtg gtc tca tta ctg ggg gca ggc gac Ser Thr Val Asp Cys Asn Gly Val Val Ser Leu Leu Gly Ala Gly Asp 595	600	605		1824
cca gag gcc aca tcc cca gga agc cac ctc ctc cgc cct gtg atg cta Pro Glu Ala Thr Ser Pro Gly Ser His Leu Leu Arg Pro Val Met Leu 610	615	620		1872
gag cac ccg cca gac acg acc acg cca tcg gag gag cca ggc ggg ccc Glu His Pro Pro Asp Thr Thr Pro Ser Glu Glu Pro Gly Gly Pro 625	630	635	640	1920
cag atg ctg acc tcc cag gct ccg tgt gta gat ggc ttc gag gag cca				1968

Gln Met Leu Thr Ser Gln Ala Pro Cys Val Asp Gly Phe Glu Glu Pro			
645	650	655	
gga gca cg <sup>g</sup> cag cg <sup>g</sup> gcc ctc agc gca gtc agc gtc ctc acc agc gca			2016
Gly Ala Arg Gln Arg Ala Leu Ser Ala Val Ser Val Leu Thr Ser Ala			
660	665	670	
ctg gaa gag tta gag gag tct cg <sup>c</sup> cac aag tgt cca cca tgc tgg aac			2064
Leu Glu Leu Glu Glu Ser Arg His Lys Cys Pro Pro Cys Trp Asn			
675	680	685	
cgt ctc gcc cag cg <sup>c</sup> tac ctg atc tgg gag tgc tgc cc <sup>g</sup> ctg tgg atg			2112
Arg Leu Ala Gln Arg Tyr Leu Ile Trp Glu Cys Cys Pro Leu Trp Met			
690	695	700	
tcc atc aag cag gga gtg aag ttg gtg gtc atg gac cc <sup>g</sup> ttt act gac			2160
Ser Ile Lys Gln Gly Val Lys Leu Val Val Met Asp Pro Phe Thr Asp			
705	710	715	720
ctc acc atc act atg tgc atc gta ctc aac aca ctc ttc atg gc <sup>g</sup> ctg			2208
Leu Thr Ile Thr Met Cys Ile Val Leu Asn Thr Leu Phe Met Ala Leu			
725	730	735	
gag cac tac aac atg aca agt gaa ttc gag gag atg ctg cag gc <sup>c</sup> gga			2256
Glu His Tyr Asn Met Thr Ser Glu Phe Glu Glu Met Leu Gln Val Gly			
740	745	750	
aac ctg gtc ttc aca ggg att ttc aca gca gag atg acc ttc aag atc			2304
Asn Leu Val Phe Thr Gly Ile Phe Thr Ala Glu Met Thr Phe Lys Ile			
755	760	765	
att gcc ctc gac ccc tac tac tac ttc caa cag ggc tgg aac atc ttc			2352
Ile Ala Leu Asp Pro Tyr Tyr Phe Gln Gln Gly Trp Asn Ile Phe			
770	775	780	
gac agc atc atc gtc atc ctt agc ctc atg gag ctg ggc ctg tcc cg <sup>c</sup>			2400
Asp Ser Ile Ile Val Ile Leu Ser Leu Met Glu Leu Gly Leu Ser Arg			
785	790	795	800
atg agc aac ttg tcg gtg ctg cg <sup>c</sup> tcc ttc cg <sup>c</sup> ctg ctg cgg gc <sup>c</sup> ttc			2448
Met Ser Asn Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe			
805	810	815	
aag ctg gcc aaa tca tgg ccc acc ctg aac aca ctc atc aag atc atc			2496
Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Thr Leu Ile Lys Ile Ile			
820	825	830	
ggg aac tca gtg ggg gca ctg ggg aac ctg aca ctg gtg cta gcc atc			2544
Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile			
835	840	845	
atc gtg ttc atc ttt gct gtg ggc atg cag ctc ttc ggc aag aac			2592
Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Asn			
850	855	860	
tac tcg gag ctg agg gac agc gac tca ggc ctg ctg cct cg <sup>c</sup> tgg cac			2640
Tyr Ser Glu Leu Arg Asp Ser Asp Ser Gly Leu Leu Pro Arg Trp His			
865	870	875	880
atg atg gac ttc ttt cat gcc ttc ctc atc atc ttc cg <sup>c</sup> atc ctc tgt			2688
Met Met Asp Phe Phe His Ala Phe Leu Ile Ile Phe Arg Ile Leu Cys			
885	890	895	

gga gag tgg atc gag acc atg tgg gac tgc atg gag gtg tcg ggg cag Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ser Gly Gln 900 905 910	2736
tca tta tgc ctg ctg gtc ttc ttg ctt atg gtc att ggc aac ctt Ser Leu Cys Leu Leu Val Phe Leu Leu Val Met Val Ile Gly Asn Leu 915 920 925	2784
gtg gtc ctg aat ctc ttc ctg gcc ttg ctg ctc agc tcc ttc agt gca Val Val Leu Asn Leu Phe Leu Ala Leu Leu Ser Ser Phe Ser Ala 930 935 940	2832
gac aac ctc aca gcc cct gat gag gac aga gag atg aac aac ctc cag Asp Asn Leu Thr Ala Pro Asp Glu Asp Arg Glu Met Asn Asn Leu Gln 945 950 955 960	2880
ctg gcc ctg gcc cgc atc cag agg ggc ctg cgc ttt gtc aag cg <sup>g</sup> acc Leu Ala Leu Ala Arg Ile Gln Arg Gly Leu Arg Phe Val Lys Arg Thr 965 970 975	2928
acc tgg gat ttc tgc tgt ggt ctc ctg cgg cag cct cag aag ccc Thr Trp Asp Phe Cys Cys Gly Leu Leu Arg Gln Arg Pro Gln Lys Pro 980 985 990	2976
gca gcc ctt gcc gcc cag ggc cag ctg ccc agc tgc att gcc acc ccc Ala Ala Leu Ala Ala Gln Gly Gln Leu Pro Ser Cys Ile Ala Thr Pro 995 1000 1005	3024
tac tcc ccg cca ccc cca gag acg gag aag gtg cct ccc acc cgc Tyr Ser Pro Pro Pro Pro Glu Thr Glu Lys Val Pro Pro Thr Arg 1010 1015 1020	3069
aag gaa aca cgg ttt gag gaa ggc gag caa cca ggc cag ggc acc Lys Glu Thr Arg Phe Glu Glu Gly Glu Gln Pro Gly Gln Gly Thr 1025 1030 1035	3114
ccc ggg gat cca gag ccc gtg tgt gtg ccc atc gct gtg gcc gag Pro Gly Asp Pro Glu Pro Val Cys Val Pro Ile Ala Val Ala Glu 1040 1045 1050	3159
tca gac aca gat gac caa gaa gaa gat gag gag aac agc ctg ggc Ser Asp Thr Asp Asp Gln Glu Glu Asp Glu Glu Asn Ser Leu Gly 1055 1060 1065	3204
acg gag gag gag tcc agc aag cag cag gaa tcc cag cct gtg tcc Thr Glu Glu Glu Ser Ser Lys Gln Gln Glu Ser Gln Pro Val Ser 1070 1075 1080	3249
ggt ggc cca gag gcc cct ccg gat tcc agg acc tgg agc cag gtg Gly Gly Pro Glu Ala Pro Pro Asp Ser Arg Thr Trp Ser Gln Val 1085 1090 1095	3294
tca gcg act gcc tcc tct gag gcc gag gcc agt gca tct cag gcc Ser Ala Thr Ala Ser Ser Glu Ala Glu Ala Ser Ala Ser Gln Ala 1100 1105 1110	3339
gac tgg cgg cag cag tgg aaa gcg gaa ccc cag gcc cca ggg tgc Asp Trp Arg Gln Gln Trp Lys Ala Glu Pro Gln Ala Pro Gly Cys 1115 1120 1125	3384
ggt gag acc cca gag gac agt tgc tcc gag ggc agc aca gca gac Gly Glu Thr Pro Glu Asp Ser Cys Ser Glu Gly Ser Thr Ala Asp 1130 1135 1140	3429

atg acc aac acc gct gag ctc	ctg gag cag atc cct	gac ctc ggc	3474
Met Thr Asn Thr Ala Glu Leu	Leu Glu Gln Ile Pro	Asp Leu Gly	
1145	1150	1155	
cag gat gtc aag gac cca gag	gac tgc ttc act gaa	ggc tgt gtc	3519
Gln Asp Val Lys Asp Pro Glu	Asp Cys Phe Thr Glu	Gly Cys Val	
1160	1165	1170	
cgc cgc tgt ccc tgc tgt gcg	gtg gac acc aca cag	gcc cca ggg	3564
Arg Arg Cys Pro Cys Cys Ala	Val Asp Thr Thr Gln	Ala Pro Gly	
1175	1180	1185	
aag gtc tgg tgg cgg ttg cgc	aag acc tgc tac cac	atc gtg gag	3609
Lys Val Trp Trp Arg Leu Arg	Lys Thr Cys Tyr His	Ile Val Glu	
1190	1195	1200	
cac agc tgg ttc gag aca ttc	atc atc ttc atg atc	cta ctc agc	3654
His Ser Trp Phe Glu Thr Phe	Ile Ile Phe Met Ile	Leu Leu Ser	
1205	1210	1215	
agt gga gcg ctg gcc ttc gag	gac atc tac cta gag	gag cgg aag	3699
Ser Gly Ala Leu Ala Phe Glu	Asp Ile Tyr Leu Glu	Glu Arg Lys	
1220	1225	1230	
acc atc aag gtt ctg ctt gag	tat gcc gac aag atg	ttc aca tat	3744
Thr Ile Lys Val Leu Leu Glu	Tyr Ala Asp Lys Met	Phe Thr Tyr	
1235	1240	1245	
gtc ttc gtg ctg gag atg ctg	ctc aag tgg gtg gcc	tac ggc ttc	3789
Val Phe Val Leu Glu Met Leu	Leu Lys Trp Val Ala	Tyr Gly Phe	
1250	1255	1260	
aag aag tac ttc acc aat gcc	tgg tgc tgg ctc gac	ttc ctc atc	3834
Lys Lys Tyr Phe Thr Asn Ala	Trp Cys Trp Leu Asp	Phe Leu Ile	
1265	1270	1275	
gta gac gtc tct ctg gtc agc	ctg gtg gcc aac acc	ctg ggc ttt	3879
Val Asp Val Ser Leu Val Ser	Leu Val Ala Asn Thr	Leu Gly Phe	
1280	1285	1290	
gcc gag atg ggt ccc atc aag	tca ctg cgg acg ctg	cgt gca ctc	3924
Ala Glu Met Gly Pro Ile Lys	Ser Leu Arg Thr Leu	Arg Ala Leu	
1295	1300	1305	
cgt cct ctg aga gct ctg tca	cga ttt gag ggc atg	agg gtg gtg	3969
Arg Pro Leu Arg Ala Leu Ser	Arg Phe Glu Gly Met	Arg Val Val	
1310	1315	1320	
gtc aat gcc ctg gtg ggc gcc	atc ccg tcc atc atg	aac gtc ctc	4014
Val Asn Ala Leu Val Gly Ala	Ile Pro Ser Ile Met	Asn Val Leu	
1325	1330	1335	
ctc gtc tgc ctc atc ttc tgg	ctc atc ttc agc atc	atg ggc gtg	4059
Leu Val Cys Leu Ile Phe Trp	Leu Ile Phe Ser Ile	Met Gly Val	
1340	1345	1350	
aac ctc ttt gcg ggg aag ttt	ggg agg tgc atc aac	cag aca gag	4104
Asn Leu Phe Ala Gly Lys Phe	Gly Arg Cys Ile Asn	Gln Thr Glu	
1355	1360	1365	
gga gac ttg cct ttg aac tac	acc atc gtg aac aac	aag agc cag	4149
Gly Asp Leu Pro Leu Asn Tyr	Thr Ile Val Asn Asn	Lys Ser Gln	

1370	1375	1380	
tgt gag tcc ttg aac ttg acc	gga gaa ttg tac tgg	acc aag gtg	4194
Cys Glu Ser Leu Asn Leu Thr	Gly Glu Leu Tyr Trp	Thr Lys Val	
1385	1390	1395	
aaa gtc aac ttt gac aac gtg	ggg gcc ggg tac ctg	gcc ctt ctg	4239
Lys Val Asn Phe Asp Asn Val	Gly Ala Gly Tyr Leu	Ala Leu Leu	
1400	1405	1410	
cag gtg gca aca ttt aaa ggc	tgg atg gac att atg	tat gca gct	4284
Gln Val Ala Thr Phe Lys Gly	Trp Met Asp Ile Met	Tyr Ala Ala	
1415	1420	1425	
gtg gac tcc agg ggg tat gaa	gag cag cct cag tgg	gaa tac aac	4329
Val Asp Ser Arg Gly Tyr Glu	Glu Gln Pro Gln Trp	Glu Tyr Asn	
1430	1435	1440	
ctc tac atg tac atc tat ttt	gtc att ttc atc atc	ttt ggg tct	4374
Leu Tyr Met Tyr Ile Tyr Phe	Val Ile Phe Ile Ile	Phe Gly Ser	
1445	1450	1455	
ttc ttc acc ctg aac ctc ttt	att ggt gtc atc att	gac aac ttc	4419
Phe Phe Thr Leu Asn Leu Phe	Ile Gly Val Ile Ile	Asp Asn Phe	
1460	1465	1470	
aac caa cag aag aaa aag tta	ggg ggc cag gac atc	ttc atg aca	4464
Asn Gln Gln Lys Lys Lys Leu	Gly Gly Gln Asp Ile	Phe Met Thr	
1475	1480	1485	
gag gag cag aag aag tac tac	aat gcc atg aag aag	ctg ggc tcc	4509
Glu Glu Gln Lys Lys Tyr Tyr	Asn Ala Met Lys Lys	Leu Gly Ser	
1490	1495	1500	
aag aag ccc cag aag ccc atc	cca cg <sub>g</sub> ccc ctg aac	aag tac cag	4554
Lys Lys Pro Gln Lys Pro Ile	Pro Arg Pro Leu Asn	Lys Tyr Gln	
1505	1510	1515	
ggc ttc ata ttc gac att gtg	acc aag cag gcc ttt	gac gtc acc	4599
Gly Phe Ile Phe Asp Ile Val	Thr Lys Gln Ala Phe	Asp Val Thr	
1520	1525	1530	
atc atg ttt ctg atc tgc ttg	aat atg gtg acc atg	atg gtg gag	4644
Ile Met Phe Leu Ile Cys Leu	Asn Met Val Thr Met	Met Val Glu	
1535	1540	1545	
aca gat gac caa agt cct gag	aaa atc aac atc ttg	gcc aag atc	4689
Thr Asp Asp Gln Ser Pro Glu	Lys Ile Asn Ile Leu	Ala Lys Ile	
1550	1555	1560	
aac ctg ctc ttt gtg gcc atc	ttc aca ggc gag tgt	att gtc aag	4734
Asn Leu Leu Phe Val Ala Ile	Phe Thr Gly Glu Cys	Ile Val Lys	
1565	1570	1575	
ctg gct gcc ctg cgc cac tac	tac ttc acc aac agc	tgg aat atc	4779
Leu Ala Ala Leu Arg His Tyr	Tyr Phe Thr Asn Ser	Trp Asn Ile	
1580	1585	1590	
ttc gac ttc gtg gtt gtc atc	ctc tcc atc gtg ggc	act gtg ctc	4824
Phe Asp Phe Val Val Val Ile	Leu Ser Ile Val Gly	Thr Val Leu	
1595	1600	1605	
tcg gac atc atc cag aag tac	ttc ttc tcc ccg acg	ctc ttc cga	4869

Ser	Asp	Ile	Ile	Gln	Lys	Tyr	Phe	Phe	Ser	Pro	Thr	Leu	Phe	Arg	
1610						1615						1620			
gtc	atc	cgc	ctg	gcc	cga	ata	ggc	cgc	atc	ctc	aga	ctg	atc	cga	4914
Val	Ile	Arg	Leu	Ala	Arg	Ile	Gly	Arg	Ile	Leu	Arg	Leu	Ile	Arg	
1625						1630						1635			
ggg	gcc	aag	ggg	atc	cgc	acg	ctg	ctc	ttt	gcc	ctc	atg	atg	tcc	4959
Gly	Ala	Lys	Gly	Ile	Arg	Thr	Leu	Leu	Phe	Ala	Leu	Met	Met	Ser	
1640						1645						1650			
ctg	cct	gcc	ctc	ttc	aac	atc	ggg	ctg	ctg	ctc	ttc	ctc	gtc	atg	5004
Leu	Pro	Ala	Leu	Phe	Asn	Ile	Gly	Leu	Leu	Leu	Phe	Leu	Val	Met	
1655						1660						1665			
ttc	atc	tac	tcc	atc	ttt	ggc	atg	gcc	aac	ttc	gct	tat	gtc	aag	5049
Phe	Ile	Tyr	Ser	Ile	Phe	Gly	Met	Ala	Asn	Phe	Ala	Tyr	Val	Lys	
1670						1675						1680			
tgg	gag	gct	ggc	atc	gac	gac	atg	ttc	aac	ttc	cag	acc	ttc	gcc	5094
Trp	Glu	Ala	Gly	Ile	Asp	Asp	Met	Phe	Asn	Phe	Gln	Thr	Phe	Ala	
1685						1690						1695			
aac	agc	atg	ctg	tgc	ctc	ttc	cag	atc	acc	acg	tcg	gcc	ggc	tgg	5139
Asn	Ser	Met	Leu	Cys	Leu	Phe	Gln	Ile	Thr	Thr	Ser	Ala	Gly	Trp	
1700						1705						1710			
gat	ggc	ctc	ctc	agc	ccc	atc	ctc	aac	act	ggg	ccg	ccc	tac	tgc	5184
Asp	Gly	Leu	Leu	Ser	Pro	Ile	Leu	Asn	Thr	Gly	Pro	Pro	Tyr	Cys	
1715						1720						1725			
gac	ccc	act	ctg	ccc	aac	agc	aat	ggc	tct	cg	ggg	gac	tgc	ggg	5229
Asp	Pro	Thr	Leu	Pro	Asn	Ser	Asn	Gly	Ser	Arg	Gly	Asp	Cys	Gly	
1730						1735						1740			
agc	cca	gcc	gtg	ggc	atc	ctc	ttc	ttc	acc	acc	tac	atc	atc	atc	5274
Ser	Pro	Ala	Val	Gly	Ile	Leu	Phe	Phe	Thr	Thr	Tyr	Ile	Ile	Ile	
1745						1750						1755			
tcc	ttc	ctc	atc	gtg	gtc	aac	atg	tac	att	gcc	atc	atc	ctg	gag	5319
Ser	Phe	Leu	Ile	Val	Val	Asn	Met	Tyr	Ile	Ala	Ile	Ile	Leu	Glu	
1760						1765						1770			
aac	ttc	agc	gtg	gcc	acg	gag	gag	agc	acc	gag	ccc	ctg	agt	gag	5364
Asn	Phe	Ser	Val	Ala	Thr	Glu	Glu	Ser	Thr	Glu	Pro	Leu	Ser	Glu	
1775						1780						1785			
gac	gac	ttc	gat	atg	tcc	tat	gag	atc	tgg	gag	aaa	ttt	gac	cca	5409
Asp	Asp	Phe	Asp	Met	Phe	Tyr	Glu	Ile	Trp	Glu	Lys	Phe	Asp	Pro	
1790						1795						1800			
gag	gcc	act	cag	ttt	att	gag	tat	tcg	gtc	ctg	tct	gac	ttt	gcc	5454
Glu	Ala	Thr	Gln	Phe	Ile	Glu	Tyr	Ser	Val	Leu	Ser	Asp	Phe	Ala	
1805						1810						1815			
gat	gcc	ctg	tct	gag	cca	ctc	cgt	atc	gcc	aag	ccc	aac	cag	ata	5499
Asp	Ala	Leu	Ser	Glu	Pro	Leu	Arg	Ile	Ala	Lys	Pro	Asn	Gln	Ile	
1820						1825						1830			
agc	ctc	atc	aac	atg	gac	ctg	ccc	atg	gtg	agt	ggg	gac	cgc	atc	5544
Ser	Leu	Ile	Asn	Met	Asp	Leu	Pro	Met	Val	Ser	Gly	Asp	Arg	Ile	
1835						1840						1845			

cat tgc atg gac att ctc ttt	gcc ttc acc aaa agg	gtc ctg ggg	5589
His Cys Met Asp Ile Leu Phe	Ala Phe Thr Lys Arg	Val Leu Gly	
1850	1855	1860	
gag tct ggg gag atg gac gcc	ctg aag atc cag atg	gag gag aag	5634
Glu Ser Gly Glu Met Asp Ala	Leu Lys Ile Gln Met	Glu Glu Lys	
1865	1870	1875	
tcc atg gca gcc aac cca tcc	aag atc tcc tac gag	ccc atc acc	5679
Phe Met Ala Ala Asn Pro Ser	Lys Ile Ser Tyr Glu	Pro Ile Thr	
1880	1885	1890	
acc aca ctc cgg cgc aag cac	gaa gag gtg tcg gcc	atg gtt atc	5724
Thr Thr Leu Arg Arg Lys His	Glu Glu Val Ser Ala	Met Val Ile	
1895	1900	1905	
cag aga gcc ttc cgc agg cac	ctg ctg caa cgc tct	ttg aag cat	5769
Gln Arg Ala Phe Arg Arg His	Leu Leu Gln Arg Ser	Leu Lys His	
1910	1915	1920	
gcc tcc ttc ctc ttc cgt cag	cag gcg ggc agc ggc	ctc tcc gaa	5814
Ala Ser Phe Leu Phe Arg Gln	Gln Ala Gly Ser Gly	Leu Ser Glu	
1925	1930	1935	
gag gat gcc cct gag cga gag	ggc ctc atc gcc tac	gtg atg agt	5859
Glu Asp Ala Pro Glu Arg Glu	Gly Leu Ile Ala Tyr	Val Met Ser	
1940	1945	1950	
gag aac ttc tcc cga ccc ctt	ggc cca ccc tcc agc	tcc tcc atc	5904
Glu Asn Phe Ser Arg Pro Leu	Gly Pro Pro Ser Ser	Ser Ser Ile	
1955	1960	1965	
tcc tcc act tcc ttc cca ccc	tcc tat gac agt gtc	act aga gcc	5949
Ser Ser Thr Ser Phe Pro Pro	Ser Tyr Asp Ser Val	Thr Arg Ala	
1970	1975	1980	
acc agc gat aac ctc cag gtg	cgg ggg tct gac tac	agc cac agt	5994
Thr Ser Asp Asn Leu Gln Val	Arg Gly Ser Asp Tyr	Ser His Ser	
1985	1990	1995	
gaa gat ctc gcc gac ttc ccc	cct tct ccg gac agg	gac cgt gag	6039
Glu Asp Leu Ala Asp Phe Pro	Pro Ser Pro Asp Arg	Asp Arg Glu	
2000	2005	2010	
tcc atc gtg tgaggctcggtctggc caggacacac tgaaaaagcag			6088
Ser Ile Val			
2015			
cctttttcac catggcaaac ctaaatgcag tcagtcamaa accagcctgg	ggccttcctg		6148
gctttggag taagaaaatgg gcct			6172

<210> 4  
<211> 2016  
<212> PRT  
<213> Homo sapiens

<400> 4

Met Ala Asn Phe Leu Leu Pro Arg Gly Thr Ser Ser Phe Arg Arg Phe  
1 5 10 15

Thr Arg Glu Ser Leu Ala Ala Ile Glu Lys Arg Met Ala Glu Lys Gln  
20 25 30

Ala Arg Gly Ser Thr Thr Leu Gln Glu Ser Arg Glu Gly Leu Pro Glu  
35 40 45

Glu Glu Ala Pro Arg Pro Gln Leu Asp Leu Gln Ala Ser Lys Lys Leu  
50 55 60

Pro Asp Leu Tyr Gly Asn Pro Pro Gln Glu Leu Ile Gly Glu Pro Leu  
65 70 75 80

Glu Asp Leu Asp Pro Phe Tyr Ser Thr Gln Lys Thr Phe Ile Val Leu  
85 90 95

Asn Lys Gly Lys Thr Ile Phe Arg Phe Ser Ala Thr Asn Ala Leu Tyr  
100 105 110

Val Leu Ser Pro Phe His Pro Ile Arg Arg Ala Ala Val Lys Ile Leu  
115 120 125

Val His Ser Leu Phe Asn Met Leu Ile Met Cys Thr Ile Leu Thr Asn  
130 135 140

Cys Val Phe Met Ala Gln His Asp Pro Pro Pro Trp Thr Lys Tyr Val  
145 150 155 160

Glu Tyr Thr Phe Thr Ala Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile  
165 170 175

Leu Ala Arg Gly Phe Cys Leu His Ala Phe Thr Phe Leu Arg Asp Pro  
180 185 190

Trp Asn Trp Leu Asp Phe Ser Val Ile Ile Met Ala Tyr Thr Thr Glu  
195 200 205

Phe Val Asp Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu  
210 215 220

Arg Ala Leu Lys Thr Ile Ser Val Ile Ser Gly Leu Lys Thr Ile Val  
225 230 235 240

Gly Ala Leu Ile Gln Ser Val Lys Lys Leu Ala Asp Val Met Val Leu  
245 250 255

Thr Val Phe Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe  
260 265 270

Met Gly Asn Leu Arg His Lys Cys Val Arg Asn Phe Thr Ala Leu Asn  
275 280 285

Gly Thr Asn Gly Ser Val Glu Ala Asp Gly Leu Val Trp Glu Ser Leu  
290 295 300

Asp Leu Tyr Leu Ser Asp Pro Glu Asn Tyr Leu Leu Lys Asn Gly Thr  
305 310 315 320

Ser Asp Val Leu Leu Cys Gly Asn Ser Ser Asp Ala Gly Thr Cys Pro  
325 330 335

Glu Gly Tyr Arg Cys Leu Lys Ala Gly Glu Asn Pro Asp His Gly Tyr  
340 345 350

Thr Ser Phe Asp Ser Phe Ala Trp Ala Phe Leu Ala Leu Phe Arg Leu  
355 360 365

Met Thr Gln Asp Cys Trp Glu Arg Leu Tyr Gln Gln Thr Leu Arg Ser  
370 375 380

Ala Gly Lys Ile Tyr Met Ile Phe Phe Met Leu Val Ile Phe Leu Gly  
385 390 395 400

Ser Phe Tyr Leu Val Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr  
405 410 415

Glu Glu Gln Asn Gln Ala Thr Ile Ala Glu Thr Glu Glu Lys Glu Lys  
420 425 430

Arg Phe Gln Glu Ala Met Glu Met Leu Lys Lys Glu His Glu Ala Leu  
435 440 445

Thr Ile Arg Gly Val Asp Thr Val Ser Arg Ser Ser Leu Glu Met Ser  
450 455 460

Pro Leu Ala Pro Val Asn Ser His Glu Arg Arg Ser Lys Arg Arg Lys  
465 470 475 480

Arg Met Ser Ser Gly Thr Glu Glu Cys Gly Glu Asp Arg Leu Pro Lys  
485 490 495

Ser Asp Ser Glu Asp Gly Pro Arg Ala Met Asn His Leu Ser Leu Thr  
500 505 510

Arg Gly Leu Ser Arg Thr Ser Met Lys Pro Arg Ser Ser Arg Gly Ser

515

520

525

Ile Phe Thr Phe Arg Arg Arg Asp Leu Gly Ser Glu Ala Asp Phe Ala  
530 535 540

Asp Asp Glu Asn Ser Thr Ala Gly Glu Ser Glu Ser His Arg Thr Ser  
545 550 555 560

Leu Leu Val Pro Trp Pro Leu Arg Arg Thr Ser Ala Gln Gly Gln Pro  
565 570 575

Ser Pro Gly Thr Ser Ala Pro Gly His Ala Leu His Gly Lys Lys Asn  
580 585 590

Ser Thr Val Asp Cys Asn Gly Val Val Ser Leu Leu Gly Ala Gly Asp  
595 600 605

Pro Glu Ala Thr Ser Pro Gly Ser His Leu Leu Arg Pro Val Met Leu  
610 615 620

Glu His Pro Pro Asp Thr Thr Pro Ser Glu Glu Pro Gly Gly Pro  
625 630 635 640

Gln Met Leu Thr Ser Gln Ala Pro Cys Val Asp Gly Phe Glu Glu Pro  
645 650 655

Gly Ala Arg Gln Arg Ala Leu Ser Ala Val Ser Val Leu Thr Ser Ala  
660 665 670

Leu Glu Glu Leu Glu Glu Ser Arg His Lys Cys Pro Pro Cys Trp Asn  
675 680 685

Arg Leu Ala Gln Arg Tyr Leu Ile Trp Glu Cys Cys Pro Leu Trp Met  
690 695 700

Ser Ile Lys Gln Gly Val Lys Leu Val Val Met Asp Pro Phe Thr Asp  
705 710 715 720

Leu Thr Ile Thr Met Cys Ile Val Leu Asn Thr Leu Phe Met Ala Leu  
725 730 735

Glu His Tyr Asn Met Thr Ser Glu Phe Glu Glu Met Leu Gln Val Gly  
740 745 750

Asn Leu Val Phe Thr Gly Ile Phe Thr Ala Glu Met Thr Phe Lys Ile  
755 760 765

Ile Ala Leu Asp Pro Tyr Tyr Tyr Phe Gln Gln Gly Trp Asn Ile Phe  
770 775 780

Asp Ser Ile Ile Val Ile Leu Ser Leu Met Glu Leu Gly Leu Ser Arg  
785 790 795 800

Met Ser Asn Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe  
805 810 815

Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Thr Leu Ile Lys Ile Ile  
820 825 830

Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile  
835 840 845

Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Asn  
850 855 860

Tyr Ser Glu Leu Arg Asp Ser Asp Ser Gly Leu Leu Pro Arg Trp His  
865 870 875 880

Met Met Asp Phe Phe His Ala Phe Leu Ile Ile Phe Arg Ile Leu Cys  
885 890 895

Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ser Gly Gln  
900 905 910

Ser Leu Cys Leu Leu Val Phe Leu Leu Val Met Val Ile Gly Asn Leu  
915 920 925

Val Val Leu Asn Leu Phe Leu Ala Leu Leu Ser Ser Phe Ser Ala  
930 935 940

Asp Asn Leu Thr Ala Pro Asp Glu Asp Arg Glu Met Asn Asn Leu Gln  
945 950 955 960

Leu Ala Leu Ala Arg Ile Gln Arg Gly Leu Arg Phe Val Lys Arg Thr  
965 970 975

Thr Trp Asp Phe Cys Cys Gly Leu Leu Arg Gln Arg Pro Gln Lys Pro  
980 985 990

Ala Ala Leu Ala Ala Gln Gln Leu Pro Ser Cys Ile Ala Thr Pro  
995 1000 1005

Tyr Ser Pro Pro Pro Pro Glu Thr Glu Lys Val Pro Pro Thr Arg  
1010 1015 1020

Lys Glu Thr Arg Phe Glu Glu Gly Glu Gln Pro Gly Gln Gly Thr  
1025 1030 1035

Pro Gly Asp Pro Glu Pro Val Cys Val Pro Ile Ala Val Ala Glu  
1040 1045 1050

Ser Asp Thr Asp Asp Gln Glu Glu Asp Glu Glu Asn Ser Leu Gly  
1055 1060 1065

Thr Glu Glu Glu Ser Ser Lys Gln Gln Glu Ser Gln Pro Val Ser  
1070 1075 1080

Gly Gly Pro Glu Ala Pro Pro Asp Ser Arg Thr Trp Ser Gln Val  
1085 1090 1095

Ser Ala Thr Ala Ser Ser Glu Ala Glu Ala Ser Ala Ser Gln Ala  
1100 1105 1110

Asp Trp Arg Gln Gln Trp Lys Ala Glu Pro Gln Ala Pro Gly Cys  
1115 1120 1125

Gly Glu Thr Pro Glu Asp Ser Cys Ser Glu Gly Ser Thr Ala Asp  
1130 1135 1140

Met Thr Asn Thr Ala Glu Leu Leu Glu Gln Ile Pro Asp Leu Gly  
1145 1150 1155

Gln Asp Val Lys Asp Pro Glu Asp Cys Phe Thr Glu Gly Cys Val  
1160 1165 1170

Arg Arg Cys Pro Cys Cys Ala Val Asp Thr Thr Gln Ala Pro Gly  
1175 1180 1185

Lys Val Trp Trp Arg Leu Arg Lys Thr Cys Tyr His Ile Val Glu  
1190 1195 1200

His Ser Trp Phe Glu Thr Phe Ile Ile Phe Met Ile Leu Leu Ser  
1205 1210 1215

Ser Gly Ala Leu Ala Phe Glu Asp Ile Tyr Leu Glu Glu Arg Lys  
1220 1225 1230

Thr Ile Lys Val Leu Leu Glu Tyr Ala Asp Lys Met Phe Thr Tyr  
1235 1240 1245

Val Phe Val Leu Glu Met Leu Leu Lys Trp Val Ala Tyr Gly Phe  
1250 1255 1260

Lys Lys Tyr Phe Thr Asn Ala Trp Cys Trp Leu Asp Phe Leu Ile  
1265 1270 1275

Val Asp Val Ser Leu Val Ser Leu Val Ala Asn Thr Leu Gly Phe  
1280 1285 1290

Ala Glu Met Gly Pro Ile Lys Ser Leu Arg Thr Leu Arg Ala Leu  
1295 1300 1305

Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met Arg Val Val  
1310 1315 1320

Val Asn Ala Leu Val Gly Ala Ile Pro Ser Ile Met Asn Val Leu  
1325 1330 1335

Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly Val  
1340 1345 1350

Asn Leu Phe Ala Gly Lys Phe Gly Arg Cys Ile Asn Gln Thr Glu  
1355 1360 1365

Gly Asp Leu Pro Leu Asn Tyr Thr Ile Val Asn Asn Lys Ser Gln  
1370 1375 1380

Cys Glu Ser Leu Asn Leu Thr Gly Glu Leu Tyr Trp Thr Lys Val  
1385 1390 1395

Lys Val Asn Phe Asp Asn Val Gly Ala Gly Tyr Leu Ala Leu Leu  
1400 1405 1410

Gln Val Ala Thr Phe Lys Gly Trp Met Asp Ile Met Tyr Ala Ala  
1415 1420 1425

Val Asp Ser Arg Gly Tyr Glu Glu Gln Pro Gln Trp Glu Tyr Asn  
1430 1435 1440

Leu Tyr Met Tyr Ile Tyr Phe Val Ile Phe Ile Ile Phe Gly Ser  
1445 1450 1455

Phe Phe Thr Leu Asn Leu Phe Ile Gly Val Ile Ile Asp Asn Phe  
1460 1465 1470

Asn Gln Gln Lys Lys Leu Gly Gly Gln Asp Ile Phe Met Thr  
1475 1480 1485

Glu Glu Gln Lys Lys Tyr Tyr Asn Ala Met Lys Lys Leu Gly Ser

1490                    1495                    1500

Lys Lys Pro Gln Lys Pro Ile Pro Arg Pro Leu Asn Lys Tyr Gln  
1505                    1510                    1515

Gly Phe Ile Phe Asp Ile Val Thr Lys Gln Ala Phe Asp Val Thr  
1520                    1525                    1530

Ile Met Phe Leu Ile Cys Leu Asn Met Val Thr Met Met Val Glu  
1535                    1540                    1545

Thr Asp Asp Gln Ser Pro Glu Lys Ile Asn Ile Leu Ala Lys Ile  
1550                    1555                    1560

Asn Leu Leu Phe Val Ala Ile Phe Thr Gly Glu Cys Ile Val Lys  
1565                    1570                    1575

Leu Ala Ala Leu Arg His Tyr Tyr Phe Thr Asn Ser Trp Asn Ile  
1580                    1585                    1590

Phe Asp Phe Val Val Val Ile Leu Ser Ile Val Gly Thr Val Leu  
1595                    1600                    1605

Ser Asp Ile Ile Gln Lys Tyr Phe Phe Ser Pro Thr Leu Phe Arg  
1610                    1615                    1620

Val Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Ile Arg  
1625                    1630                    1635

Gly Ala Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser  
1640                    1645                    1650

Leu Pro Ala Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met  
1655                    1660                    1665

Phe Ile Tyr Ser Ile Phe Gly Met Ala Asn Phe Ala Tyr Val Lys  
1670                    1675                    1680

Trp Glu Ala Gly Ile Asp Asp Met Phe Asn Phe Gln Thr Phe Ala  
1685                    1690                    1695

Asn Ser Met Leu Cys Leu Phe Gln Ile Thr Thr Ser Ala Gly Trp  
1700                    1705                    1710

Asp Gly Leu Leu Ser Pro Ile Leu Asn Thr Gly Pro Pro Tyr Cys  
1715                    1720                    1725

Asp Pro Thr Leu Pro Asn Ser Asn Gly Ser Arg Gly Asp Cys Gly  
1730 1735 1740

Ser Pro Ala Val Gly Ile Leu Phe Phe Thr Thr Tyr Ile Ile Ile  
1745 1750 1755

Ser Phe Leu Ile Val Val Asn Met Tyr Ile Ala Ile Ile Leu Glu  
1760 1765 1770

Asn Phe Ser Val Ala Thr Glu Glu Ser Thr Glu Pro Leu Ser Glu  
1775 1780 1785

Asp Asp Phe Asp Met Phe Tyr Glu Ile Trp Glu Lys Phe Asp Pro  
1790 1795 1800

Glu Ala Thr Gln Phe Ile Glu Tyr Ser Val Leu Ser Asp Phe Ala  
1805 1810 1815

Asp Ala Leu Ser Glu Pro Leu Arg Ile Ala Lys Pro Asn Gln Ile  
1820 1825 1830

Ser Leu Ile Asn Met Asp Leu Pro Met Val Ser Gly Asp Arg Ile  
1835 1840 1845

His Cys Met Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly  
1850 1855 1860

Glu Ser Gly Glu Met Asp Ala Leu Lys Ile Gln Met Glu Glu Lys  
1865 1870 1875

Phe Met Ala Ala Asn Pro Ser Lys Ile Ser Tyr Glu Pro Ile Thr  
1880 1885 1890

Thr Thr Leu Arg Arg Lys His Glu Glu Val Ser Ala Met Val Ile  
1895 1900 1905

Gln Arg Ala Phe Arg Arg His Leu Leu Gln Arg Ser Leu Lys His  
1910 1915 1920

Ala Ser Phe Leu Phe Arg Gln Gln Ala Gly Ser Gly Leu Ser Glu  
1925 1930 1935

Glu Asp Ala Pro Glu Arg Glu Gly Leu Ile Ala Tyr Val Met Ser  
1940 1945 1950

Glu Asn Phe Ser Arg Pro Leu Gly Pro Pro Ser Ser Ser Ser Ile  
1955 1960 1965

Ser Ser Thr Ser Phe Pro Pro Ser Tyr Asp Ser Val Thr Arg Ala  
1970 1975 1980

Thr Ser Asp Asn Leu Gln Val Arg Gly Ser Asp Tyr Ser His Ser  
1985 1990 1995

Glu Asp Leu Ala Asp Phe Pro Pro Ser Pro Asp Arg Asp Arg Glu  
2000 2005 2010

Ser Ile Val  
2015

<210> 5  
<211> 6169  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (1)..(6045)

atg gca aac ttc cta tta cct agg ggc acc agc agc ttc cgc agg ttc Met Ala Asn Phe Leu Leu Pro Arg Gly Thr Ser Ser Phe Arg Arg Phe	48
1 5 10 15	
aca cgg gag tcc ctg gca gcc atc gag aag cgc atg gcg gag aag caa Thr Arg Glu Ser Leu Ala Ala Ile Glu Lys Arg Met Ala Glu Lys Gln	96
20 25 30	
gcc cgc ggc tca acc acc ttg cag gag agc cga gag ggg ctg ccc gag Ala Arg Gly Ser Thr Thr Leu Gln Glu Ser Arg Glu Gly Leu Pro Glu	144
35 40 45	
gag gag gct ccc cgg ccc cag ctg gac ctg cag gcc tcc aaa aag ctg Glu Glu Ala Pro Arg Pro Gln Leu Asp Leu Gln Ala Ser Lys Lys Leu	192
50 55 60	
cca gat ctc tat ggc aat cca ccc caa gag ctc atc gga gag ccc ctg Pro Asp Leu Tyr Gly Asn Pro Pro Gln Glu Leu Ile Gly Glu Pro Leu	240
65 70 75 80	
gag gac ctg gac ccc ttc tat agc acc caa aag act ttc atc gta ctg Glu Asp Leu Asp Pro Phe Tyr Ser Thr Gln Lys Thr Phe Ile Val Leu	288
85 90 95	
aat aaa ggc aag acc atc ttc cgg ttc agt gcc acc aac gcc ttg tat Asn Lys Gly Lys Thr Ile Phe Arg Phe Ser Ala Thr Asn Ala Leu Tyr	336
100 105 110	
gtc ctc agt ccc ttc cac ccc atc cgg aga gcg gct gtg aag att ctg Val Leu Ser Pro Phe His Pro Ile Arg Arg Ala Ala Val Lys Ile Leu	384
115 120 125	
gtt cac tcg ctc ttc aac atg ctc atc atg tgc acc atc ctc acc aac Val His Ser Leu Phe Asn Met Leu Ile Met Cys Thr Ile Leu Thr Asn	432
130 135 140	

tgc gtg ttc atg gcc cag cac gac cct cca ccc tgg acc aag tat gtc Cys Val Phe Met Ala Gln His Asp Pro Pro Pro Trp Thr Lys Tyr Val 145 150 155 160	480
gag tac acc ttc acc gcc att tac acc ttt gag tct ctg gtc aag att Glu Tyr Thr Phe Thr Ala Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile 165 170 175	528
ctg gct cga ggc ttc tgc ctg cac gcg ttc act ttc ctt cg <sup>g</sup> gac cca Leu Ala Arg Gly Phe Cys Leu His Ala Phe Thr Phe Leu Arg Asp Pro 180 185 190	576
tgg aac tgg ctg gac ttt agt gtg att atc atg gca tac aca act gaa Trp Asn Trp Leu Asp Phe Ser Val Ile Ile Met Ala Tyr Thr Thr Glu 195 200 205	624
ttt gtg gac ctg ggc aat gtc tca gcc tta cgc acc ttc cga gtc ctc Phe Val Asp Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu 210 215 220	672
cgg gcc ctg aaa act ata tca gtc att tca ggg ctg aag acc atc gtg Arg Ala Leu Lys Thr Ile Ser Val Ile Ser Gly Leu Lys Thr Ile Val 225 230 235 240	720
ggg gcc ctg atc cag tct gtg aag aag ctg gct gat gtg atg gtc ctc Gly Ala Leu Ile Gln Ser Val Lys Lys Leu Ala Asp Val Met Val Leu 245 250 255	768
aca gtc ttc tgc ctc agc gtc ttt gcc ctc atc ggc ctg cag ctc ttc Thr Val Phe Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe 260 265 270	816
atg ggc aac cta agg cac aag tgc gtg cgc aac ttc aca gcg ctc aac Met Gly Asn Leu Arg His Lys Cys Val Arg Asn Phe Thr Ala Leu Asn 275 280 285	864
ggc acc aac ggc tcc gtg gag gcc gac ggc ttg gtc tgg gaa tcc ctg Gly Thr Asn Gly Ser Val Glu Ala Asp Gly Leu Val Trp Glu Ser Leu 290 295 300	912
gac ctt tac ctc agt gat cca gaa aat tac ctg ctc aag aac ggc acc Asp Leu Tyr Leu Ser Asp Pro Glu Asn Tyr Leu Leu Lys Asn Gly Thr 305 310 315 320	960
tct gat gtg tta ctg tgt ggg aac agc tct gac gct ggg aca tgt ccg Ser Asp Val Leu Leu Cys Gly Asn Ser Ser Asp Ala Gly Thr Cys Pro 325 330 335	1008
gag ggc tac cgg tgc cta aag gca ggc gag aac ccc gac cac ggc tac Glu Gly Tyr Arg Cys Leu Lys Ala Gly Glu Asn Pro Asp His Gly Tyr 340 345 350	1056
acc agc ttc gat tcc ttt gcc tgg gcc ttt ctt gca ctc ttc cgc ctg Thr Ser Phe Asp Ser Phe Ala Trp Ala Phe Leu Ala Leu Phe Arg Leu 355 360 365	1104
atg acg cag gac tgc tgg gag cgc ctc tat cag cag acc ctc agg tcc Met Thr Gln Asp Cys Trp Glu Arg Leu Tyr Gln Gln Thr Leu Arg Ser 370 375 380	1152
gca ggg aag atc tac atg atc ttc ttc atg ctt gtc atc ttc ctg ggg Ala Gly Lys Ile Tyr Met Ile Phe Phe Met Leu Val Ile Phe Leu Gly	1200

385	390	395	400	
tcc ttc tac ctg gtg aac ctg atc ctg gcc gtg gtc gca atg gcc tat Ser Phe Tyr Leu Val Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr 405		410	415	1248
gag gag caa aac caa gcc acc atc gct gag acc gag gag aag gaa aag Glu Glu Gln Asn Gln Ala Thr Ile Ala Glu Thr Glu Glu Lys Glu Lys 420	425		430	1296
cgc ttc cag gag gcc atg gaa atg ctc aag aaa gaa cac gag gcc ctc Arg Phe Gln Glu Ala Met Glu Met Leu Lys Lys Glu His Glu Ala Leu 435	440		445	1344
acc atc agg ggt gtg gat acc gtg tcc cgt agc tcc ttg gag atg tcc Thr Ile Arg Gly Val Asp Thr Val Ser Arg Ser Ser Leu Glu Met Ser 450	455	460		1392
cct ttg gcc cca gta aac agc cat gag aga aga agc aag agg aga aaa Pro Leu Ala Pro Val Asn Ser His Glu Arg Arg Ser Lys Arg Arg Lys 465	470	475		1440
cg <sup>g</sup> atg tct tca gga act gag gag tgt ggg gag gac agg ctc ccc aag Arg Met Ser Ser Gly Thr Glu Glu Cys Gly Glu Asp Arg Leu Pro Lys 485	490		495	1488
tct gac tca gaa gat ggt ccc aga gca atg aat cat ctc agc ctc acc Ser Asp Ser Glu Asp Gly Pro Arg Ala Met Asn His Leu Ser Leu Thr 500	505		510	1536
cgt ggc ctc agc agg act tct atg aag cca cgt tcc agc cgc ggg agc Arg Gly Leu Ser Arg Thr Ser Met Lys Pro Arg Ser Ser Arg Gly Ser 515	520		525	1584
att ttc acc ttt cgc agg cga gac ctg ggt tct gaa gca gat ttt gca Ile Phe Thr Phe Arg Arg Asp Leu Gly Ser Glu Ala Asp Phe Ala 530	535	540		1632
gat gat gaa aac agc aca gcg ggg gag agc gag agc cac cac aca tca Asp Asp Glu Asn Ser Thr Ala Gly Glu Ser Glu Ser His His Thr Ser 545	550	555		1680
ctg ctg gtg ccc tgg ccc ctg cgc cg <sup>g</sup> acc agt gcc cag gga cag ccc Leu Leu Val Pro Trp Pro Leu Arg Arg Thr Ser Ala Gln Gly Gln Pro 565	570		575	1728
agt ccc gga acc tcg gct cct ggc cac gcc ctc cat ggc aaa aag aac Ser Pro Gly Thr Ser Ala Pro Gly His Ala Leu His Gly Lys Lys Asn 580	585	590		1776
agc act gtg gac tgc aat ggg gtg gtc tca tta ctg ggg gca ggc gac Ser Thr Val Asp Cys Asn Gly Val Val Ser Leu Leu Gly Ala Gly Asp 595	600		605	1824
cca gag gcc aca tcc cca gga agc cac ctc ctc cgc cct gtg atg cta Pro Glu Ala Thr Ser Pro Gly Ser His Leu Leu Arg Pro Val Met Leu 610	615	620		1872
gag cac ccg cca gac acg acc acg cca tcg gag gag cca ggc ggg ccc Glu His Pro Pro Asp Thr Thr Pro Ser Glu Glu Pro Gly Gly Pro 625	630	635		1920
cag atg ctg acc tcc cag gct ccg tgt gta gat ggc ttc gag gag cca				1968

Gln	Met	Leu	Thr	Ser	Gln	Ala	Pro	Cys	Val	Asp	Gly	Phe	Glu	Glu	Pro
645					650					655					
gga	gca	cgg	cag	cgg	gcc	ctc	agc	gca	gtc	agc	gtc	ctc	acc	agc	gca
Gly	Ala	Arg	Gln	Arg	Ala	Leu	Ser	Ala	Val	Ser	Val	Leu	Thr	Ser	Ala
660					665					670					
ctg	gaa	gag	tta	gag	gag	tct	cgc	cac	aag	tgt	cca	cca	tgc	tgg	aac
Leu	Glu	Glu	Leu	Glu	Glu	Ser	Arg	His	Lys	Cys	Pro	Pro	Cys	Trp	Asn
675					680					685					
cgt	ctc	gcc	cag	cgc	tac	ctg	atc	tgg	gag	tgc	tgc	ccg	ctg	tgg	atg
Arg	Leu	Ala	Gln	Arg	Tyr	Leu	Ile	Trp	Glu	Cys	Cys	Pro	Leu	Trp	Met
690					695					700					
tcc	atc	aag	cag	gga	gtg	aag	ttg	gtg	gtc	atg	gac	ccg	ttt	act	gac
Ser	Ile	Lys	Gln	Gly	Val	Lys	Leu	Val	Val	Met	Asp	Pro	Phe	Thr	Asp
705					710					715			720		
ctc	acc	atc	act	atg	tgc	atc	gta	ctc	aac	aca	ctc	ttc	atg	gcg	ctg
Leu	Thr	Ile	Thr	Met	Cys	Ile	Val	Leu	Asn	Thr	Leu	Phe	Met	Ala	Leu
725					730					735					
gag	cac	tac	aac	atg	aca	agt	gaa	ttc	gag	gag	atg	ctg	cag	gtc	gga
Glu	His	Tyr	Asn	Met	Thr	Ser	Glu	Phe	Glu	Glu	Met	Leu	Gln	Val	Gly
740					745					750					
aac	ctg	gtc	ttc	aca	ggg	att	ttc	aca	gca	gag	atg	acc	ttc	aag	atc
Asn	Leu	Val	Phe	Thr	Gly	Ile	Phe	Thr	Ala	Glu	Met	Thr	Phe	Lys	Ile
755					760					765					
att	gcc	ctc	gac	ccc	tac	tac	ttc	caa	cag	ggc	tgg	aac	atc	ttc	
Ile	Ala	Leu	Asp	Pro	Tyr	Tyr	Phe	Gln	Gln	Gly	Trp	Asn	Ile	Phe	
770					775					780					
gac	agc	atc	atc	gtc	atc	ctt	agc	ctc	atg	gag	ctg	ggc	ctg	tcc	cgc
Asp	Ser	Ile	Ile	Val	Ile	Leu	Ser	Leu	Met	Glu	Leu	Gly	Leu	Ser	Arg
785					790					795			800		
atg	agc	aac	ttg	tcg	gtg	ctg	cgc	tcc	ttc	cgc	ctg	ctg	cgg	gtc	ttc
Met	Ser	Asn	Leu	Ser	Val	Leu	Arg	Ser	Phe	Arg	Leu	Leu	Arg	Val	Phe
805					810					815					
aag	ctg	gcc	aaa	tca	tgg	ccc	acc	ctg	aac	aca	ctc	atc	aag	atc	atc
Lys	Leu	Ala	Lys	Ser	Trp	Pro	Thr	Leu	Asn	Thr	Leu	Ile	Lys	Ile	Ile
820					825					830					
ggg	aac	tca	gtg	ggg	gca	ctg	ggg	aac	ctg	aca	ctg	gtg	cta	gcc	atc
Gly	Asn	Ser	Val	Gly	Ala	Leu	Gly	Asn	Leu	Thr	Leu	Val	Leu	Ala	Ile
835					840					845					
atc	gtg	ttc	atc	ttt	gct	gtg	gtg	ggc	atg	cag	ctc	ttt	ggc	aag	aac
Ile	Val	Phe	Ile	Phe	Ala	Val	Val	Gly	Met	Gln	Leu	Phe	Gly	Lys	Asn
850					855					860					
tac	tcg	gag	ctg	agg	gac	gac	tca	ggc	ctg	ctg	cct	cgc	tgg	cac	
Tyr	Ser	Glu	Leu	Arg	Asp	Ser	Asp	Ser	Gly	Leu	Leu	Pro	Arg	Trp	His
865					870					875			880		
atg	atg	gac	ttc	ttt	cat	gcc	ttc	ctc	atc	atc	ttc	cgc	atc	ctc	tgt
Met	Met	Asp	Phe	Phe	His	Ala	Phe	Leu	Ile	Ile	Phe	Arg	Ile	Leu	Cys
885					890					895					

gga gag tgg atc gag acc atg tgg gac tgc atg gag gtg tcg ggg cag Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ser Gly Gln 900 905 910	2736
tca tta tgc ctg ctg gtc ttc ttg ctt atg gtc att ggc aac ctt Ser Leu Cys Leu Leu Val Phe Leu Leu Val Met Val Ile Gly Asn Leu 915 920 925	2784
gtg gtc ctg aat ctc ttc ctg gcc ttg ctg ctc agc tcc ttc agt gca Val Val Leu Asn Leu Phe Leu Ala Leu Leu Ser Ser Phe Ser Ala 930 935 940	2832
gac aac ctc aca gcc cct gat gag gac aga gag atg aac aac ctc cag Asp Asn Leu Thr Ala Pro Asp Glu Asp Arg Glu Met Asn Asn Leu Gln 945 950 955 960	2880
ctg gcc ctg gcc cgc atc cag agg ggc ctg cgc ttt gtc aag cgg acc Leu Ala Leu Ala Arg Ile Gln Arg Gly Leu Arg Phe Val Lys Arg Thr 965 970 975	2928
acc tgg gat ttc tgc tgt ggt ctc ctg cgg cag cgg cct cag aag ccc Thr Trp Asp Phe Cys Cys Gly Leu Leu Arg Gln Arg Pro Gln Lys Pro 980 985 990	2976
gca gcc ctt gcc gcc cag ggc cag ctg ccc agc tgc att gcc acc ccc Ala Ala Leu Ala Ala Gln Gly Gln Leu Pro Ser Cys Ile Ala Thr Pro 995 1000 1005	3024
tac tcc ccg cca ccc cca gag acg gag aag gtg cct ccc acc cgc Tyr Ser Pro Pro Pro Pro Glu Thr Glu Lys Val Pro Pro Thr Arg 1010 1015 1020	3069
aag gaa aca cggtt gag gaa ggc gag caa cca ggc cag ggc acc Lys Glu Thr Arg Phe Glu Glu Gly Glu Gln Pro Gly Gln Gly Thr 1025 1030 1035	3114
ccc ggg gat cca gag ccc gtg tgt gtg ccc atc gct gtg gcc gag Pro Gly Asp Pro Glu Pro Val Cys Val Pro Ile Ala Val Ala Glu 1040 1045 1050	3159
tca gac aca gat gac caa gaa gaa gat gag gag aac agc ctg ggc Ser Asp Thr Asp Asp Gln Glu Glu Asp Glu Glu Asn Ser Leu Gly 1055 1060 1065	3204
acg gag gag gag tcc agc aag cag gaa tcc cag cct gtg tcc ggt Thr Glu Glu Glu Ser Ser Lys Gln Glu Ser Gln Pro Val Ser Gly 1070 1075 1080	3249
ggc cca gag gcc cct ccg gat tcc agg acc tgg agc cag gtg tca Gly Pro Glu Ala Pro Pro Asp Ser Arg Thr Trp Ser Gln Val Ser 1085 1090 1095	3294
gcg act gcc tcc tct gag gcc gag gcc agt gca tct cag gcc gac Ala Thr Ala Ser Ser Glu Ala Glu Ala Ser Ala Ser Gln Ala Asp 1100 1105 1110	3339
tgg cgg cag cag tgg aaa gcg gaa ccc cag gcc cca ggg tgc ggt Trp Arg Gln Gln Trp Lys Ala Glu Pro Gln Ala Pro Gly Cys Gly 1115 1120 1125	3384
gag acc cca gag gac agt tgc tcc gag ggc agc aca gca gac atg Glu Thr Pro Glu Asp Ser Cys Ser Glu Gly Ser Thr Ala Asp Met 1130 1135 1140	3429

acc aac	acc gct gag ctc ctg	gag cag atc cct gac	ctc ggc cag	3474
Thr Asn	Thr Ala Glu Leu Leu	Glu Gln Ile Pro Asp	Leu Gly Gln	
1145	1150	1155		
gat gtc	aag gac cca gag gac	tgc ttc act gaa ggc	tgt gtc cgg	3519
Asp Val	Lys Asp Pro Glu Asp	Cys Phe Thr Glu Gly	Cys Val Arg	
1160	1165	1170		
cgc tgt	ccc tgc tgt gcg gtg	gac acc aca cag gcc	cca ggg aag	3564
Arg Cys	Pro Cys Cys Ala Val	Asp Thr Thr Gln Ala	Pro Gly Lys	
1175	1180	1185		
gtc tgg	tgg cgg ttg cgc aag	acc tgc tac cac atc	gtg gag cac	3609
Val Trp	Trp Arg Leu Arg Lys	Thr Cys Tyr His Ile	Val Glu His	
1190	1195	1200		
agc tgg	ttc gag aca ttc atc	atc ttc atg atc cta	ctc agc agt	3654
Ser Trp	Phe Glu Thr Phe Ile	Ile Phe Met Ile Leu	Leu Ser Ser	
1205	1210	1215		
gga gcg	ctg gcc ttc gag gac	atc tac cta gag gag	cgg aag acc	3699
Gly Ala	Leu Ala Phe Glu Asp	Ile Tyr Leu Glu Glu	Arg Lys Thr	
1220	1225	1230		
atc aag	gtt ctg ctt gag tat	gcc gac aag atg ttc	aca tat gtc	3744
Ile Lys	Val Leu Leu Glu Tyr	Ala Asp Lys Met Phe	Thr Tyr Val	
1235	1240	1245		
ttc gtg	ctg gag atg ctg ctc	aag tgg gtg gcc tac	ggc ttc aag	3789
Phe Val	Leu Glu Met Leu Leu	Lys Trp Val Ala Tyr	Gly Phe Lys	
1250	1255	1260		
aag tac	ttc acc aat gcc tgg	tgc tgg ctc gac ttc	ctc atc gta	3834
Lys Tyr	Phe Thr Asn Ala Trp	Cys Trp Leu Asp Phe	Leu Ile Val	
1265	1270	1275		
gac gtc	tct ctg gtc agc ctg	gtg gcc aac acc ctg	ggc ttt gcc	3879
Asp Val	Ser Leu Val Ser Leu	Val Ala Asn Thr Leu	Gly Phe Ala	
1280	1285	1290		
gag atg	ggt ccc atc aag tca	ctg cgg acg ctg cgt	gca ctc cgt	3924
Glu Met	Gly Pro Ile Lys Ser	Leu Arg Thr Leu Arg	Ala Leu Arg	
1295	1300	1305		
cct ctg	aga gct ctg tca cga	ttt gag ggc atg agg	gtg gtg gtc	3969
Pro Leu	Arg Ala Leu Ser Arg	Phe Glu Gly Met Arg	Val Val Val	
1310	1315	1320		
aat gcc	ctg gtg ggc gcc atc	ccg tcc atc atg aac	gtc ctc ctc	4014
Asn Ala	Leu Val Gly Ala Ile	Pro Ser Ile Met Asn	Val Leu Leu	
1325	1330	1335		
gtc tgc	ctc atc ttc tgg ctc	atc ttc agc atc atg	ggc gtg aac	4059
Val Cys	Leu Ile Phe Trp Leu	Ile Phe Ser Ile Met	Gly Val Asn	
1340	1345	1350		
ctc ttt	gcg ggg aag ttt ggg	agg tgc atc aac cag	aca gag gga	4104
Leu Phe	Ala Gly Lys Phe Gly	Arg Cys Ile Asn Gln	Thr Glu Gly	
1355	1360	1365		
gac ttg	cct ttg aac tac acc	atc gtg aac aac aag	agc cag tgt	4149
Asp Leu	Pro Leu Asn Tyr Thr	Ile Val Asn Asn Lys	Ser Gln Cys	

1370	1375	1380	
gag tcc ttg aac ttg acc gga Glu Ser Leu Asn Leu Thr Gly 1385	gaa ttg tac tgg acc aag gtg aaa Glu Leu Tyr Trp Thr Lys Val Lys 1390	1395	4194
gtc aac ttt gac aac gtg ggg Val Asn Phe Asp Asn Val Gly 1400	gcc ggg tac ctg gcc ctt ctg cag Ala Gly Tyr Leu Ala Leu Leu Gln 1405	1410	4239
gtg gca aca ttt aaa ggc tgg Val Ala Thr Phe Lys Gly Trp 1415	atg gac att atg tat gca gct gtg Met Asp Ile Met Tyr Ala Ala Val 1420	1425	4284
gac tcc agg ggg tat gaa gag Asp Ser Arg Gly Tyr Glu Glu 1430	cag cct cag tgg gaa tac aac ctc Gln Pro Gln Trp Glu Tyr Asn Leu 1435	1440	4329
tac atg tac atc tat ttt gtc Tyr Met Tyr Ile Tyr Phe Val 1445	att ttc atc atc ttt ggg tct ttc Ile Phe Ile Ile Phe Gly Ser Phe 1450	1455	4374
ttc acc ctg aac ctc ttt att ggt gtc atc att gac aac ttc aac Phe Thr Leu Asn Leu Phe Ile Gly Val Ile Ile Asp Asn Phe Asn 1460	1465	1470	4419
caa cag aag aaa aag tta ggg ggc cag gac atc ttc atg aca gag Gln Gln Lys Lys Lys Leu Gly Gly Gln Asp Ile Phe Met Thr Glu 1475	1480	1485	4464
gag cag aag aag tac tac aat gcc atg aag aag ctg ggc tcc aag Glu Gln Lys Lys Tyr Tyr Asn Ala Met Lys Lys Leu Gly Ser Lys 1490	1495	1500	4509
aag ccc cag aag ccc atc cca cg cg ccc ctg aac aag tac cag ggc Lys Pro Gln Lys Pro Ile Pro Arg Pro Leu Asn Lys Tyr Gln Gly 1505	1510	1515	4554
ttc ata ttc gac att gtg acc aag cag gcc ttt gac gtc acc atc Phe Ile Phe Asp Ile Val Thr Lys Gln Ala Phe Asp Val Thr Ile 1520	1525	1530	4599
atg ttt ctg atc tgc ttg aat atg gtg acc atg atg gtg gag aca Met Phe Leu Ile Cys Leu Asn Met Val Thr Met Met Val Glu Thr 1535	1540	1545	4644
gat gac caa agt cct gag aaa atc aac atc ttg gcc aag atc aac Asp Asp Gln Ser Pro Glu Lys Ile Asn Ile Leu Ala Lys Ile Asn 1550	1555	1560	4689
ctg ctc ttt gtg gcc atc ttc aca ggc gag tgt att gtc aag ctg Leu Leu Phe Val Ala Ile Phe Thr Gly Glu Cys Ile Val Lys Leu 1565	1570	1575	4734
gct gcc ctg cgc cac tac tac ttc acc aac agc tgg aat atc ttc Ala Ala Leu Arg His Tyr Tyr Phe Thr Asn Ser Trp Asn Ile Phe 1580	1585	1590	4779
gac ttc gtg gtt gtc atc ctc tcc atc gtg ggc act gtg ctc tcg Asp Phe Val Val Val Ile Leu Ser Ile Val Gly Thr Val Leu Ser 1595	1600	1605	4824
gac atc atc cag aag tac ttc ttc tcc ccg acg ctc ttc cga gtc 1610			4869

Asp	Ile	Ile	Gln	Lys	Tyr	Phe	Phe	Ser	Pro	Thr	Leu	Phe	Arg	Val	
1610						1615						1620			
atc	cgc	ctg	gcc	cga	ata	ggc	cgc	atc	ctc	aga	ctg	atc	cga	ggg	4914
Ile	Arg	Leu	Ala	Arg	Ile	Gly	Arg	Ile	Leu	Arg	Leu	Ile	Arg	Gly	
1625						1630						1635			
gcc	aag	ggg	atc	cgc	acg	ctg	ctc	ttt	gcc	ctc	atg	atg	tcc	ctg	4959
Ala	Lys	Gly	Ile	Arg	Thr	Leu	Leu	Phe	Ala	Leu	Met	Met	Ser	Leu	
1640						1645						1650			
cct	gcc	ctc	ttc	aac	atc	ggg	ctg	ctg	ctc	ttc	ctc	gtc	atg	ttc	5004
Pro	Ala	Leu	Phe	Asn	Ile	Gly	Leu	Leu	Leu	Phe	Leu	Val	Met	Phe	
1655						1660						1665			
atc	tac	tcc	atc	ttt	ggc	atg	gcc	aac	ttc	gct	tat	gtc	aag	tgg	5049
Ile	Tyr	Ser	Ile	Phe	Gly	Met	Ala	Asn	Phe	Ala	Tyr	Val	Lys	Trp	
1670						1675						1680			
gag	gct	ggc	atc	gac	gac	atg	ttc	aac	ttc	cag	acc	ttc	gcc	aac	5094
Glu	Ala	Gly	Ile	Asp	Asp	Met	Phe	Asn	Phe	Gln	Thr	Phe	Ala	Asn	
1685						1690						1695			
agc	atg	ctg	tgc	ctc	ttc	cag	atc	acc	acg	tcg	gcc	ggc	tgg	gat	5139
Ser	Met	Leu	Cys	Leu	Phe	Gln	Ile	Thr	Thr	Ser	Ala	Gly	Trp	Asp	
1700						1705						1710			
ggc	ctc	ctc	agc	ccc	atc	ctc	aac	act	ggg	ccg	ccc	tac	tgc	gac	5184
Gly	Leu	Leu	Ser	Pro	Ile	Leu	Asn	Thr	Gly	Pro	Pro	Tyr	Cys	Asp	
1715						1720						1725			
ccc	act	ctg	ccc	aac	agc	aat	ggc	tct	cgg	ggg	gac	tgc	ggg	agc	5229
Pro	Thr	Leu	Pro	Asn	Ser	Asn	Gly	Ser	Arg	Gly	Asp	Cys	Gly	Ser	
1730						1735						1740			
cca	gcc	gtg	ggc	atc	ctc	ttc	ttc	acc	acc	tac	atc	atc	atc	tcc	5274
Pro	Ala	Val	Gly	Ile	Leu	Phe	Phe	Thr	Thr	Tyr	Ile	Ile	Ile	Ile	
1745						1750						1755			
ttc	ctc	atc	gtg	gtc	aac	atg	tac	att	gcc	atc	atc	ctg	gag	aac	5319
Phe	Leu	Ile	Val	Val	Asn	Met	Tyr	Ile	Ala	Ile	Ile	Leu	Glu	Asn	
1760						1765						1770			
ttc	agc	gtg	gcc	acg	gag	gag	agc	acc	gag	ccc	ctg	agt	gag	gac	5364
Phe	Ser	Val	Ala	Thr	Glu	Glu	Ser	Thr	Glu	Pro	Leu	Ser	Glu	Asp	
1775						1780						1785			
gac	ttc	gat	atg	ttc	tat	gag	atc	tgg	gag	aaa	ttt	gac	cca	gag	5409
Asp	Phe	Asp	Met	Phe	Tyr	Glu	Ile	Trp	Glu	Lys	Phe	Asp	Pro	Glu	
1790						1795						1800			
gcc	act	cag	ttt	att	gag	tat	tcg	gtc	ctg	tct	gac	ttt	gcc	gat	5454
Ala	Thr	Gln	Phe	Ile	Glu	Tyr	Ser	Val	Leu	Ser	Asp	Phe	Ala	Asp	
1805						1810						1815			
gcc	ctg	tct	gag	cca	ctc	cgt	atc	gcc	aag	ccc	aac	cag	ata	agc	5499
Ala	Leu	Ser	Glu	Pro	Leu	Arg	Ile	Ala	Lys	Pro	Asn	Gln	Ile	Ser	
1820						1825						1830			
ctc	atc	aac	atg	gac	ctg	ccc	atg	gtg	agt	ggg	gac	cgc	atc	cat	5544
Leu	Ile	Asn	Met	Asp	Leu	Pro	Met	Val	Ser	Gly	Asp	Arg	Ile	His	
1835						1840						1845			

tgc atg	gac att ctc ttt gcc	ttc acc aaa agg gtc	ctg ggg gag	5589
Cys Met	Asp Ile Leu Phe Ala	Phe Thr Lys Arg Val	Leu Gly Glu	
1850	1855	1860		
tct ggg	gag atg gac gcc ctg	aag atc cag atg gag	gag aag ttc	5634
Ser Gly	Glu Met Asp Ala Leu	Lys Ile Gln Met Glu	Glu Lys Phe	
1865	1870	1875		
atg gca	gcc aac cca tcc aag	atc tcc tac gag ccc	atc acc acc	5679
Met Ala	Ala Asn Pro Ser Lys	Ile Ser Tyr Glu Pro	Ile Thr Thr	
1880	1885	1890		
aca ctc	cgg cgc aag cac gaa	gag gtg tcg gcc atg	gtt atc cag	5724
Thr Leu	Arg Arg Lys His Glu	Glu Val Ser Ala Met	Val Ile Gln	
1895	1900	1905		
aga gcc	ttc cgc agg cac ctg	ctg caa cgc tct ttg	aag cat gcc	5769
Arg Ala	Phe Arg Arg His Leu	Leu Gln Arg Ser Leu	Lys His Ala	
1910	1915	1920		
tcc ttc	ctc ttc cgt cag cag	gcg ggc agc ggc ctc	tcc gaa gag	5814
Ser Phe	Leu Phe Arg Gln Gln	Ala Gly Ser Gly Leu	Ser Glu Glu	
1925	1930	1935		
gat gcc	cct gag cga gag ggc	ctc atc gcc tac gtg	atg agt gag	5859
Asp Ala	Pro Glu Arg Glu Gly	Leu Ile Ala Tyr Val	Met Ser Glu	
1940	1945	1950		
aac ttc	tcc cga ccc ctt ggc	cca ccc tcc agc tcc	tcc atc tcc	5904
Asn Phe	Ser Arg Pro Leu Gly	Pro Pro Ser Ser Ser	Ser Ile Ser	
1955	1960	1965		
tcc act	tcc ttc cca ccc tcc	tat gac agt gtc act	aga gcc acc	5949
Ser Thr	Ser Phe Pro Pro Ser	Tyr Asp Ser Val Thr	Arg Ala Thr	
1970	1975	1980		
agc gat	aac ctc cag gtg cg	ggg tct gac tac agc	cac agt gaa	5994
Ser Asp	Asn Leu Gln Val Arg	Gly Ser Asp Tyr Ser	His Ser Glu	
1985	1990	1995		
gat ctc	gcc gac ttc ccc cct	tct ccg gac agg gac	cgt gag tcc	6039
Asp Leu	Ala Asp Phe Pro Pro	Ser Pro Asp Arg Asp	Arg Glu Ser	
2000	2005	2010		
atc gtg	tgaggctcgg cctggctggc	caggacacac tgaaaagcag	ccttttcac	6095
Ile Val				
2015				
catggcaaac	ctaaatgcag	tcagtcamaa	accagcctgg	6155
taagaaaatgg	gcct			6169

<210> 6  
<211> 2015  
<212> PRT  
<213> Homo sapiens

<400> 6

Met Ala Asn Phe Leu Leu Pro Arg Gly Thr Ser Ser Phe Arg Arg Phe  
1 5 10 15

Thr Arg Glu Ser Leu Ala Ala Ile Glu Lys Arg Met Ala Glu Lys Gln  
20 25 30

Ala Arg Gly Ser Thr Thr Leu Gln Glu Ser Arg Glu Gly Leu Pro Glu  
35 40 45

Glu Glu Ala Pro Arg Pro Gln Leu Asp Leu Gln Ala Ser Lys Lys Leu  
50 55 60

Pro Asp Leu Tyr Gly Asn Pro Pro Gln Glu Leu Ile Gly Glu Pro Leu  
65 70 75 80

Glu Asp Leu Asp Pro Phe Tyr Ser Thr Gln Lys Thr Phe Ile Val Leu  
85 90 95

Asn Lys Gly Lys Thr Ile Phe Arg Phe Ser Ala Thr Asn Ala Leu Tyr  
100 105 110

Val Leu Ser Pro Phe His Pro Ile Arg Arg Ala Ala Val Lys Ile Leu  
115 120 125

Val His Ser Leu Phe Asn Met Leu Ile Met Cys Thr Ile Leu Thr Asn  
130 135 140

Cys Val Phe Met Ala Gln His Asp Pro Pro Trp Thr Lys Tyr Val  
145 150 155 160

Glu Tyr Thr Phe Thr Ala Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile  
165 170 175

Leu Ala Arg Gly Phe Cys Leu His Ala Phe Thr Phe Leu Arg Asp Pro  
180 185 190

Trp Asn Trp Leu Asp Phe Ser Val Ile Ile Met Ala Tyr Thr Thr Glu  
195 200 205

Phe Val Asp Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu  
210 215 220

Arg Ala Leu Lys Thr Ile Ser Val Ile Ser Gly Leu Lys Thr Ile Val  
225 230 235 240

Gly Ala Leu Ile Gln Ser Val Lys Lys Leu Ala Asp Val Met Val Leu  
245 250 255

Thr Val Phe Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe  
260 265 270

Met Gly Asn Leu Arg His Lys Cys Val Arg Asn Phe Thr Ala Leu Asn  
275 280 285

Gly Thr Asn Gly Ser Val Glu Ala Asp Gly Leu Val Trp Glu Ser Leu  
290 295 300

Asp Leu Tyr Leu Ser Asp Pro Glu Asn Tyr Leu Leu Lys Asn Gly Thr  
305 310 315 320

Ser Asp Val Leu Leu Cys Gly Asn Ser Ser Asp Ala Gly Thr Cys Pro  
325 330 335

Glu Gly Tyr Arg Cys Leu Lys Ala Gly Glu Asn Pro Asp His Gly Tyr  
340 345 350

Thr Ser Phe Asp Ser Phe Ala Trp Ala Phe Leu Ala Leu Phe Arg Leu  
355 360 365

Met Thr Gln Asp Cys Trp Glu Arg Leu Tyr Gln Gln Thr Leu Arg Ser  
370 375 380

Ala Gly Lys Ile Tyr Met Ile Phe Phe Met Leu Val Ile Phe Leu Gly  
385 390 395 400

Ser Phe Tyr Leu Val Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr  
405 410 415

Glu Glu Gln Asn Gln Ala Thr Ile Ala Glu Thr Glu Glu Lys Glu Lys  
420 425 430

Arg Phe Gln Glu Ala Met Glu Met Leu Lys Lys Glu His Glu Ala Leu  
435 440 445

Thr Ile Arg Gly Val Asp Thr Val Ser Arg Ser Ser Leu Glu Met Ser  
450 455 460

Pro Leu Ala Pro Val Asn Ser His Glu Arg Arg Ser Lys Arg Arg Lys  
465 470 475 480

Arg Met Ser Ser Gly Thr Glu Glu Cys Gly Glu Asp Arg Leu Pro Lys  
485 490 495

Ser Asp Ser Glu Asp Gly Pro Arg Ala Met Asn His Leu Ser Leu Thr  
500 505 510

Arg Gly Leu Ser Arg Thr Ser Met Lys Pro Arg Ser Ser Arg Gly Ser

515

520

525

Ile Phe Thr Phe Arg Arg Arg Asp Leu Gly Ser Glu Ala Asp Phe Ala  
530 535 540

Asp Asp Glu Asn Ser Thr Ala Gly Glu Ser Glu Ser His His Thr Ser  
545 550 555 560

Leu Leu Val Pro Trp Pro Leu Arg Arg Thr Ser Ala Gln Gly Gln Pro  
565 570 575

Ser Pro Gly Thr Ser Ala Pro Gly His Ala Leu His Gly Lys Lys Asn  
580 585 590

Ser Thr Val Asp Cys Asn Gly Val Val Ser Leu Leu Gly Ala Gly Asp  
595 600 605

Pro Glu Ala Thr Ser Pro Gly Ser His Leu Leu Arg Pro Val Met Leu  
610 615 620

Glu His Pro Pro Asp Thr Thr Thr Pro Ser Glu Glu Pro Gly Gly Pro  
625 630 635 640

Gln Met Leu Thr Ser Gln Ala Pro Cys Val Asp Gly Phe Glu Glu Pro  
645 650 655

Gly Ala Arg Gln Arg Ala Leu Ser Ala Val Ser Val Leu Thr Ser Ala  
660 665 670

Leu Glu Glu Leu Glu Glu Ser Arg His Lys Cys Pro Pro Cys Trp Asn  
675 680 685

Arg Leu Ala Gln Arg Tyr Leu Ile Trp Glu Cys Cys Pro Leu Trp Met  
690 695 700

Ser Ile Lys Gln Gly Val Lys Leu Val Val Met Asp Pro Phe Thr Asp  
705 710 715 720

Leu Thr Ile Thr Met Cys Ile Val Leu Asn Thr Leu Phe Met Ala Leu  
725 730 735

Glu His Tyr Asn Met Thr Ser Glu Phe Glu Glu Met Leu Gln Val Gly  
740 745 750

Asn Leu Val Phe Thr Gly Ile Phe Thr Ala Glu Met Thr Phe Lys Ile  
755 760 765

Ile Ala Leu Asp Pro Tyr Tyr Tyr Phe Gln Gln Gly Trp Asn Ile Phe  
770 775 780

Asp Ser Ile Ile Val Ile Leu Ser Leu Met Glu Leu Gly Leu Ser Arg  
785 790 795 800

Met Ser Asn Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe  
805 810 815

Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Thr Leu Ile Lys Ile Ile  
820 825 830

Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile  
835 840 845

Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Asn  
850 855 860

Tyr Ser Glu Leu Arg Asp Ser Asp Ser Gly Leu Leu Pro Arg Trp His  
865 870 875 880

Met Met Asp Phe Phe His Ala Phe Leu Ile Ile Phe Arg Ile Leu Cys  
885 890 895

Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ser Gly Gln  
900 905 910

Ser Leu Cys Leu Leu Val Phe Leu Leu Val Met Val Ile Gly Asn Leu  
915 920 925

Val Val Leu Asn Leu Phe Leu Ala Leu Leu Ser Ser Phe Ser Ala  
930 935 940

Asp Asn Leu Thr Ala Pro Asp Glu Asp Arg Glu Met Asn Asn Leu Gln  
945 950 955 960

Leu Ala Leu Ala Arg Ile Gln Arg Gly Leu Arg Phe Val Lys Arg Thr  
965 970 975

Thr Trp Asp Phe Cys Cys Gly Leu Leu Arg Gln Arg Pro Gln Lys Pro  
980 985 990

Ala Ala Leu Ala Ala Gln Gly Gln Leu Pro Ser Cys Ile Ala Thr Pro  
995 1000 1005

Tyr Ser Pro Pro Pro Pro Glu Thr Glu Lys Val Pro Pro Thr Arg  
1010 1015 1020

Lys Glu Thr Arg Phe Glu Glu Gly Glu Gln Pro Gly Gln Gly Thr  
1025 1030 1035

Pro Gly Asp Pro Glu Pro Val Cys Val Pro Ile Ala Val Ala Glu  
1040 1045 1050

Ser Asp Thr Asp Asp Gln Glu Glu Asp Glu Glu Asn Ser Leu Gly  
1055 1060 1065

Thr Glu Glu Glu Ser Ser Lys Gln Glu Ser Gln Pro Val Ser Gly  
1070 1075 1080

Gly Pro Glu Ala Pro Pro Asp Ser Arg Thr Trp Ser Gln Val Ser  
1085 1090 1095

Ala Thr Ala Ser Ser Glu Ala Glu Ala Ser Ala Ser Gln Ala Asp  
1100 1105 1110

Trp Arg Gln Gln Trp Lys Ala Glu Pro Gln Ala Pro Gly Cys Gly  
1115 1120 1125

Glu Thr Pro Glu Asp Ser Cys Ser Glu Gly Ser Thr Ala Asp Met  
1130 1135 1140

Thr Asn Thr Ala Glu Leu Leu Glu Gln Ile Pro Asp Leu Gly Gln  
1145 1150 1155

Asp Val Lys Asp Pro Glu Asp Cys Phe Thr Glu Gly Cys Val Arg  
1160 1165 1170

Arg Cys Pro Cys Cys Ala Val Asp Thr Thr Gln Ala Pro Gly Lys  
1175 1180 1185

Val Trp Trp Arg Leu Arg Lys Thr Cys Tyr His Ile Val Glu His  
1190 1195 1200

Ser Trp Phe Glu Thr Phe Ile Ile Phe Met Ile Leu Leu Ser Ser  
1205 1210 1215

Gly Ala Leu Ala Phe Glu Asp Ile Tyr Leu Glu Glu Arg Lys Thr  
1220 1225 1230

Ile Lys Val Leu Leu Glu Tyr Ala Asp Lys Met Phe Thr Tyr Val  
1235 1240 1245

Phe Val Leu Glu Met Leu Leu Lys Trp Val Ala Tyr Gly Phe Lys  
1250 1255 1260

Lys Tyr Phe Thr Asn Ala Trp Cys Trp Leu Asp Phe Leu Ile Val  
1265 1270 1275

Asp Val Ser Leu Val Ser Leu Val Ala Asn Thr Leu Gly Phe Ala  
1280 1285 1290

Glu Met Gly Pro Ile Lys Ser Leu Arg Thr Leu Arg Ala Leu Arg  
1295 1300 1305

Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met Arg Val Val Val  
1310 1315 1320

Asn Ala Leu Val Gly Ala Ile Pro Ser Ile Met Asn Val Leu Leu  
1325 1330 1335

Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly Val Asn  
1340 1345 1350

Leu Phe Ala Gly Lys Phe Gly Arg Cys Ile Asn Gln Thr Glu Gly  
1355 1360 1365

Asp Leu Pro Leu Asn Tyr Thr Ile Val Asn Asn Lys Ser Gln Cys  
1370 1375 1380

Glu Ser Leu Asn Leu Thr Gly Glu Leu Tyr Trp Thr Lys Val Lys  
1385 1390 1395

Val Asn Phe Asp Asn Val Gly Ala Gly Tyr Leu Ala Leu Leu Gln  
1400 1405 1410

Val Ala Thr Phe Lys Gly Trp Met Asp Ile Met Tyr Ala Ala Val  
1415 1420 1425

Asp Ser Arg Gly Tyr Glu Glu Gln Pro Gln Trp Glu Tyr Asn Leu  
1430 1435 1440

Tyr Met Tyr Ile Tyr Phe Val Ile Phe Ile Ile Phe Gly Ser Phe  
1445 1450 1455

Phe Thr Leu Asn Leu Phe Ile Gly Val Ile Ile Asp Asn Phe Asn  
1460 1465 1470

Gln Gln Lys Lys Lys Leu Gly Gly Gln Asp Ile Phe Met Thr Glu  
1475 1480 1485

Glu Gln Lys Lys Tyr Tyr Asn Ala Met Lys Lys Leu Gly Ser Lys

1490

1495

1500

Lys Pro Gln Lys Pro Ile Pro Arg Pro Leu Asn Lys Tyr Gln Gly  
1505 1510 1515

Phe Ile Phe Asp Ile Val Thr Lys Gln Ala Phe Asp Val Thr Ile  
1520 1525 1530

Met Phe Leu Ile Cys Leu Asn Met Val Thr Met Met Val Glu Thr  
1535 1540 1545

Asp Asp Gln Ser Pro Glu Lys Ile Asn Ile Leu Ala Lys Ile Asn  
1550 1555 1560

Leu Leu Phe Val Ala Ile Phe Thr Gly Glu Cys Ile Val Lys Leu  
1565 1570 1575

Ala Ala Leu Arg His Tyr Tyr Phe Thr Asn Ser Trp Asn Ile Phe  
1580 1585 1590

Asp Phe Val Val Val Ile Leu Ser Ile Val Gly Thr Val Leu Ser  
1595 1600 1605

Asp Ile Ile Gln Lys Tyr Phe Phe Ser Pro Thr Leu Phe Arg Val  
1610 1615 1620

Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Ile Arg Gly  
1625 1630 1635

Ala Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu  
1640 1645 1650

Pro Ala Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met Phe  
1655 1660 1665

Ile Tyr Ser Ile Phe Gly Met Ala Asn Phe Ala Tyr Val Lys Trp  
1670 1675 1680

Glu Ala Gly Ile Asp Asp Met Phe Asn Phe Gln Thr Phe Ala Asn  
1685 1690 1695

Ser Met Leu Cys Leu Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp  
1700 1705 1710

Gly Leu Leu Ser Pro Ile Leu Asn Thr Gly Pro Pro Tyr Cys Asp  
1715 1720 1725

Pro Thr Leu Pro Asn Ser Asn Gly Ser Arg Gly Asp Cys Gly Ser  
1730 1735 1740

Pro Ala Val Gly Ile Leu Phe Phe Thr Thr Tyr Ile Ile Ile Ser  
1745 1750 1755

Phe Leu Ile Val Val Asn Met Tyr Ile Ala Ile Ile Leu Glu Asn  
1760 1765 1770

Phe Ser Val Ala Thr Glu Glu Ser Thr Glu Pro Leu Ser Glu Asp  
1775 1780 1785

Asp Phe Asp Met Phe Tyr Glu Ile Trp Glu Lys Phe Asp Pro Glu  
1790 1795 1800

Ala Thr Gln Phe Ile Glu Tyr Ser Val Leu Ser Asp Phe Ala Asp  
1805 1810 1815

Ala Leu Ser Glu Pro Leu Arg Ile Ala Lys Pro Asn Gln Ile Ser  
1820 1825 1830

Leu Ile Asn Met Asp Leu Pro Met Val Ser Gly Asp Arg Ile His  
1835 1840 1845

Cys Met Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly Glu  
1850 1855 1860

Ser Gly Glu Met Asp Ala Leu Lys Ile Gln Met Glu Glu Lys Phe  
1865 1870 1875

Met Ala Ala Asn Pro Ser Lys Ile Ser Tyr Glu Pro Ile Thr Thr  
1880 1885 1890

Thr Leu Arg Arg Lys His Glu Glu Val Ser Ala Met Val Ile Gln  
1895 1900 1905

Arg Ala Phe Arg Arg His Leu Leu Gln Arg Ser Leu Lys His Ala  
1910 1915 1920

Ser Phe Leu Phe Arg Gln Gln Ala Gly Ser Gly Leu Ser Glu Glu  
1925 1930 1935

Asp Ala Pro Glu Arg Glu Gly Leu Ile Ala Tyr Val Met Ser Glu  
1940 1945 1950

Asn Phe Ser Arg Pro Leu Gly Pro Pro Ser Ser Ser Ser Ile Ser  
1955 1960 1965

Ser Thr Ser Phe Pro Pro Ser Tyr Asp Ser Val Thr Arg Ala Thr  
1970 1975 1980

Ser Asp Asn Leu Gln Val Arg Gly Ser Asp Tyr Ser His Ser Glu  
1985 1990 1995

Asp Leu Ala Asp Phe Pro Pro Ser Pro Asp Arg Asp Arg Glu Ser  
2000 2005 2010

Ile Val  
2015

<210> 7  
<211> 6169  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (1)..(6045)

<400> 7  
atg gca aac ttc cta tta cct agg ggc acc agc agc ttc cgc agg ttc 48  
Met Ala Asn Phe Leu Leu Pro Arg Gly Thr Ser Ser Phe Arg Arg Phe  
1 5 10 15

aca cgg gag tcc ctg gca gcc atc gag aag cgc atg gcg gag aag caa 96  
Thr Arg Glu Ser Leu Ala Ala Ile Glu Lys Arg Met Ala Glu Lys Gln  
20 25 30

gcc cgc ggc tca acc acc ttg cag gag agc cga gag ggg ctg ccc gag 144  
Ala Arg Gly Ser Thr Thr Leu Gln Glu Ser Arg Glu Gly Leu Pro Glu  
35 40 45

gag gag gct ccc cgg ccc cag ctg gac ctg cag gcc tcc aaa aag ctg 192  
Glu Glu Ala Pro Arg Pro Gln Leu Asp Leu Gln Ala Ser Lys Lys Leu  
50 55 60

cca gat ctc tat ggc aat cca ccc caa gag ctc atc gga gag ccc ctg 240  
Pro Asp Leu Tyr Gly Asn Pro Pro Gln Glu Leu Ile Gly Glu Pro Leu  
65 70 75 80

gag gac ctg gac ccc ttc tat agc acc caa aag act ttc atc gta ctg 288  
Glu Asp Leu Asp Pro Phe Tyr Ser Thr Gln Lys Thr Phe Ile Val Leu  
85 90 95

aat aaa ggc aag acc atc ttc cgg ttc agt gcc acc aac gcc ttg tat 336  
Asn Lys Gly Lys Thr Ile Phe Arg Phe Ser Ala Thr Asn Ala Leu Tyr  
100 105 110

gtc ctc agt ccc ttc cac ccc atc cgg aga gcg gct gtg aag att ctg 384  
Val Leu Ser Pro Phe His Pro Ile Arg Arg Ala Ala Val Lys Ile Leu  
115 120 125

gtt cac tcg ctc ttc aac atg ctc atc atg tgc acc atc ctc acc aac 432  
Val His Ser Leu Phe Asn Met Leu Ile Met Cys Thr Ile Leu Thr Asn  
130 135 140

tgc gtg ttc atg gcc cag cac gac cct cca ccc tgg acc aag tat gtc		480
Cys Val Phe Met Ala Gln His Asp Pro Pro Pro Trp Thr Lys Tyr Val		
145 150 155 160		
gag tac acc ttc acc gcc att tac acc ttt gag tct ctg gtc aag att		528
Glu Tyr Thr Phe Thr Ala Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile		
165 170 175		
ctg gct cga ggc ttc tgc ctg cac gcg ttc act ttc ctt cgg gac cca		576
Leu Ala Arg Gly Phe Cys Leu His Ala Phe Thr Phe Leu Arg Asp Pro		
180 185 190		
tgg aac tgg ctg gac ttt agt gtg att atc atg gca tac aca act gaa		624
Trp Asn Trp Leu Asp Phe Ser Val Ile Ile Met Ala Tyr Thr Thr Glu		
195 200 205		
ttt gtg gac ctg ggc aat gtc tca gcc tta cgc acc ttc cga gtc ctc		672
Phe Val Asp Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu		
210 215 220		
cgg gcc ctg aaa act ata tca gtc att tca ggg ctg aag acc atc gtg		720
Arg Ala Leu Lys Thr Ile Ser Val Ile Ser Gly Leu Lys Thr Ile Val		
225 230 235 240		
ggg gcc ctg atc cag tct gtg aag aag ctg gct gat gtg atg gtc ctc		768
Gly Ala Leu Ile Gln Ser Val Lys Lys Leu Ala Asp Val Met Val Leu		
245 250 255		
aca gtc ttc tgc ctc agc gtc ttt gcc ctc atc ggc ctg cag ctc ttc		816
Thr Val Phe Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe		
260 265 270		
atg ggc aac cta agg cac aag tgc gtg cgc aac ttc aca gcg ctc aac		864
Met Gly Asn Leu Arg His Lys Cys Val Arg Asn Phe Thr Ala Leu Asn		
275 280 285		
ggc acc aac ggc tcc gtg gag gcc gac ggc ttg gtc tgg gaa tcc ctg		912
Gly Thr Asn Gly Ser Val Glu Ala Asp Gly Leu Val Trp Glu Ser Leu		
290 295 300		
gac ctt tac ctc agt gat cca gaa aat tac ctg ctc aag aac ggc acc		960
Asp Leu Tyr Leu Ser Asp Pro Glu Asn Tyr Leu Leu Lys Asn Gly Thr		
305 310 315 320		
tct gat gtg tta ctg tgt ggg aac agc tct gac gct ggg aca tgt ccg		1008
Ser Asp Val Leu Leu Cys Gly Asn Ser Ser Asp Ala Gly Thr Cys Pro		
325 330 335		
gag ggc tac cgg tgc cta aag gca ggc gag aac ccc gac cac ggc tac		1056
Glu Gly Tyr Arg Cys Leu Lys Ala Gly Glu Asn Pro Asp His Gly Tyr		
340 345 350		
acc agc ttc gat tcc ttt gcc tgg gcc ttt ctt gca ctc ttc cgc ctg		1104
Thr Ser Phe Asp Ser Phe Ala Trp Ala Phe Leu Ala Leu Phe Arg Leu		
355 360 365		
atg acg cag gac tgc tgg gag cgc ctc tat cag cag acc ctc agg tcc		1152
Met Thr Gln Asp Cys Trp Glu Arg Leu Tyr Gln Gln Thr Leu Arg Ser		
370 375 380		
gca ggg aag atc tac atg atc ttc ttc atg ctt gtc atc ttc ctg ggg		1200
Ala Gly Lys Ile Tyr Met Ile Phe Phe Met Leu Val Ile Phe Leu Gly		

385	390	395	400	
tcc ttc tac ctg gtg aac ctg atc ctg gcc gtg gtc gca atg gcc tat Ser Phe Tyr Leu Val Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr 405	410	415		1248
gag gag caa aac caa gcc acc atc gct gag acc gag gag aag gaa aag Glu Glu Gln Asn Gln Ala Thr Ile Ala Glu Thr Glu Glu Lys Glu Lys 420	425	430		1296
cgc ttc cag gag gcc atg gaa atg ctc aag aaa gaa cac gag gcc ctc Arg Phe Gln Glu Ala Met Glu Met Leu Lys Lys Glu His Glu Ala Leu 435	440	445		1344
acc atc agg ggt gtg gat acc gtg tcc cgt agc tcc ttg gag atg tcc Thr Ile Arg Gly Val Asp Thr Val Ser Arg Ser Ser Leu Glu Met Ser 450	455	460		1392
cct ttg gcc cca gta aac agc cat gag aga aga agc aag agg aga aaa Pro Leu Ala Pro Val Asn Ser His Glu Arg Arg Ser Lys Arg Arg Lys 465	470	475	480	1440
cg <sup>g</sup> atg tct tca gga act gag gag tgt ggg gag gac agg ctc ccc aag Arg Met Ser Ser Gly Thr Glu Glu Cys Gly Glu Asp Arg Leu Pro Lys 485	490	495		1488
tct gac tca gaa gat ggt ccc aga gca atg aat cat ctc agc ctc acc Ser Asp Ser Glu Asp Gly Pro Arg Ala Met Asn His Leu Ser Leu Thr 500	505	510		1536
cgt ggc ctc agc agg act tct atg aag cca cgt tcc agc cgc ggg agc Arg Gly Leu Ser Arg Thr Ser Met Lys Pro Arg Ser Ser Arg Gly Ser 515	520	525		1584
att ttc acc ttt cgc agg cga gac ctg ggt tct gaa gca gat ttt gca Ile Phe Thr Phe Arg Arg Asp Leu Gly Ser Glu Ala Asp Phe Ala 530	535	540		1632
gat gat gaa aac agc aca gc <sup>g</sup> ggg gag agc gag agc cac cgc aca tca Asp Asp Glu Asn Ser Thr Ala Gly Glu Ser Glu Ser His Arg Thr Ser 545	550	555	560	1680
ctg ctg gtg ccc tgg ccc ctg cgc cg <sup>g</sup> acc agt gcc cag gga cag ccc Leu Leu Val Pro Trp Pro Leu Arg Arg Thr Ser Ala Gln Gly Gln Pro 565	570	575		1728
agt ccc gga acc tcg gct cct ggc cac gcc ctc cat ggc aaa aag aac Ser Pro Gly Thr Ser Ala Pro Gly His Ala Leu His Gly Lys Lys Asn 580	585	590		1776
agc act gtg gac tgc aat ggg gtg gtc tca tta ctg ggg gca ggc gac Ser Thr Val Asp Cys Asn Gly Val Val Ser Leu Leu Gly Ala Gly Asp 595	600	605		1824
cca gag gcc aca tcc cca gga agc cac ctc ctc cgc cct gtg atg cta Pro Glu Ala Thr Ser Pro Gly Ser His Leu Leu Arg Pro Val Met Leu 610	615	620		1872
gag cac ccg cca gac acg acc acg cca tcg gag gag cca ggc ggg ccc Glu His Pro Pro Asp Thr Thr Pro Ser Glu Glu Pro Gly Gly Pro 625	630	635	640	1920
cag atg ctg acc tcc cag gct ccg tgt gta gat ggc ttc gag gag cca				1968

Gln	Met	Leu	Thr	Ser	Gln	Ala	Pro	Cys	Val	Asp	Gly	Phe	Glu	Glu	Pro	
645					650								655			
gga	gca	cgg	cag	cgg	gcc	ctc	agc	gca	gtc	agc	gtc	ctc	acc	agc	gca	2016
Gly	Ala	Arg	Gln	Arg	Ala	Leu	Ser	Ala	Val	Ser	Val	Leu	Thr	Ser	Ala	
660					665								670			
ctg	gaa	gag	tta	gag	gag	tct	cgc	cac	aag	tgt	cca	cca	tgc	tgg	aac	2064
Leu	Glu	Glu	Leu	Glu	Glu	Ser	Arg	His	Lys	Cys	Pro	Pro	Cys	Trp	Asn	
675					680								685			
cgt	ctc	gcc	cag	cgc	tac	ctg	atc	tgg	gag	tgc	tgc	ccg	ctg	tgg	atg	2112
Arg	Leu	Ala	Gln	Arg	Tyr	Leu	Ile	Trp	Glu	Cys	Cys	Pro	Leu	Trp	Met	
690					695								700			
tcc	atc	aag	cag	gga	gtg	aag	ttg	gtg	gtc	atg	gac	ccg	ttt	act	gac	2160
Ser	Ile	Lys	Gln	Gly	Val	Lys	Leu	Val	Val	Met	Asp	Pro	Phe	Thr	Asp	
705					710						715				720	
ctc	acc	atc	act	atg	tgc	atc	gta	ctc	aac	aca	ctc	ttc	atg	gcg	ctg	2208
Leu	Thr	Ile	Thr	Met	Cys	Ile	Val	Leu	Asn	Thr	Leu	Phe	Met	Ala	Leu	
725					730								735			
gag	cac	tac	aac	atg	aca	agt	gaa	ttc	gag	gag	atg	ctg	cag	gtc	gga	2256
Glu	His	Tyr	Asn	Met	Thr	Ser	Glu	Phe	Glu	Glu	Met	Leu	Gln	Val	Gly	
740					745								750			
aac	ctg	gtc	ttc	aca	ggg	att	ttc	aca	gca	gag	atg	acc	ttc	aag	atc	2304
Asn	Leu	Val	Phe	Thr	Gly	Ile	Phe	Thr	Ala	Glu	Met	Thr	Phe	Lys	Ile	
755					760								765			
att	gcc	ctc	gac	ccc	tac	tac	ttc	caa	cag	ggc	tgg	aac	atc	ttc		2352
Ile	Ala	Leu	Asp	Pro	Tyr	Tyr	Phe	Gln	Gln	Gly	Trp	Asn	Ile	Phe		
770					775						780					
gac	agc	atc	atc	gtc	atc	ctt	agc	ctc	atg	gag	ctg	ggc	ctg	tcc	cgc	2400
Asp	Ser	Ile	Ile	Val	Ile	Leu	Ser	Leu	Met	Glu	Leu	Gly	Leu	Ser	Arg	
785					790					795				800		
atg	agc	aac	ttg	tcg	gtg	ctg	cgc	tcc	ttc	cgc	ctg	ctg	cgg	gtc	ttc	2448
Met	Ser	Asn	Leu	Ser	Val	Leu	Arg	Ser	Phe	Arg	Leu	Leu	Arg	Val	Phe	
805					810								815			
aag	ctg	gcc	aaa	tca	tgg	ccc	acc	ctg	aac	aca	ctc	atc	aag	atc	atc	2496
Lys	Leu	Ala	Lys	Ser	Trp	Pro	Thr	Leu	Asn	Thr	Leu	Ile	Lys	Ile	Ile	
820					825								830			
ggg	aac	tca	gtg	ggg	gca	ctg	ggg	aac	ctg	aca	ctg	gtg	cta	gcc	atc	2544
Gly	Asn	Ser	Val	Gly	Ala	Leu	Gly	Asn	Leu	Thr	Leu	Val	Leu	Ala	Ile	
835					840								845			
atc	gtg	ttc	atc	ttt	gct	gtg	gtg	ggc	atg	cag	ctc	ttt	ggc	aag	aac	2592
Ile	Val	Phe	Ile	Phe	Ala	Val	Val	Gly	Met	Gln	Leu	Phe	Gly	Lys	Asn	
850					855								860			
tac	tcg	gag	ctg	agg	gac	agc	gac	tca	ggc	ctg	ctg	cct	cgc	tgg	cac	2640
Tyr	Ser	Glu	Leu	Arg	Asp	Ser	Asp	Ser	Gly	Leu	Leu	Pro	Arg	Trp	His	
865					870								880			
atg	atg	gac	ttc	ttt	cat	gcc	ttc	ctc	atc	atc	ttc	cgc	atc	ctc	tgt	2688
Met	Met	Asp	Phe	Phe	His	Ala	Phe	Leu	Ile	Ile	Phe	Arg	Ile	Leu	Cys	
885					890								895			

gga gag tgg atc gag acc atg tgg gac tgc atg gag gtg tcg ggg cag Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ser Gly Gln	2736
900 905 910	
tca tta tgc ctg ctg gtc ttc ttg ctt atg gtc att ggc aac ctt Ser Leu Cys Leu Leu Val Phe Leu Leu Val Met Val Ile Gly Asn Leu	2784
915 920 925	
gtg gtc ctg aat ctc ttc ctg gcc ttg ctg ctc agc tcc ttc agt gca Val Val Leu Asn Leu Phe Leu Ala Leu Leu Ser Ser Phe Ser Ala	2832
930 935 940	
gac aac ctc aca gcc cct gat gag gac aga gag atg aac aac ctc cag Asp Asn Leu Thr Ala Pro Asp Glu Asp Arg Glu Met Asn Asn Leu Gln	2880
945 950 955 960	
ctg gcc ctg gcc cgc atc cag agg ggc ctg cgc ttt gtc aag cgg acc Leu Ala Leu Ala Arg Ile Gln Arg Gly Leu Arg Phe Val Lys Arg Thr	2928
965 970 975	
acc tgg gat ttc tgc tgt ggt ctc ctg cgg cag cgg cct cag aag ccc Thr Trp Asp Phe Cys Cys Gly Leu Leu Arg Gln Arg Pro Gln Lys Pro	2976
980 985 990	
gca gcc ctt gcc gcc cag ggc cag ctg ccc agc tgc att gcc acc ccc Ala Ala Leu Ala Ala Gln Gly Gln Leu Pro Ser Cys Ile Ala Thr Pro	3024
995 1000 1005	
tac tcc ccg cca ccc cca gag acg gag aag gtg cct ccc acc cgc Tyr Ser Pro Pro Pro Pro Glu Thr Glu Lys Val Pro Pro Thr Arg	3069
1010 1015 1020	
aag gaa aca cggttt gag gaa ggc gag caa cca ggc cag ggc acc Lys Glu Thr Arg Phe Glu Glu Gly Glu Gln Pro Gly Gln Gly Thr	3114
1025 1030 1035	
ccc ggg gat cca gag ccc gtg tgt gtg ccc atc gct gtg gcc gag Pro Gly Asp Pro Glu Pro Val Cys Val Pro Ile Ala Val Ala Glu	3159
1040 1045 1050	
tca gac aca gat gac caa gaa gaa gat gag gag aac agc ctg ggc Ser Asp Thr Asp Asp Gln Glu Glu Asp Glu Glu Asn Ser Leu Gly	3204
1055 1060 1065	
acg gag gag gag tcc agc aag cag gaa tcc cag cct gtg tcc ggt Thr Glu Glu Glu Ser Ser Lys Gln Glu Ser Gln Pro Val Ser Gly	3249
1070 1075 1080	
ggc cca gag gcc cct ccg gat tcc agg acc tgg agc cag gtg tca Gly Pro Glu Ala Pro Pro Asp Ser Arg Thr Trp Ser Gln Val Ser	3294
1085 1090 1095	
gcg act gcc tcc tct gag gcc gag gcc agt gca tct cag gcc gac Ala Thr Ala Ser Ser Glu Ala Glu Ala Ser Ala Ser Gln Ala Asp	3339
1100 1105 1110	
tgg cgg cag cag tgg aaa gcg gaa ccc cag gcc cca ggg tgc ggt Trp Arg Gln Gln Trp Lys Ala Glu Pro Gln Ala Pro Gly Cys Gly	3384
1115 1120 1125	
gag acc cca gag gac agt tgc tcc gag ggc agc aca gca gac atg Glu Thr Pro Glu Asp Ser Cys Ser Glu Gly Ser Thr Ala Asp Met	3429
1130 1135 1140	

acc aac acc gct gag ctc ctg	gag cag atc cct gac	ctc ggc cag	3474
Thr Asn Thr Ala Glu Leu Leu	Glu Gln Ile Pro Asp	Leu Gly Gln	
1145 1150	1155		
gat gtc aag gac cca gag gac	tgc ttc act gaa ggc	tgt gtc cgg	3519
Asp Val Lys Asp Pro Glu Asp	Cys Phe Thr Glu Gly	Cys Val Arg	
1160 1165	1170		
cgc tgt ccc tgc tgt gcg gtg	gac acc aca cag gcc	cca ggg aag	3564
Arg Cys Pro Cys Cys Ala Val	Asp Thr Thr Gln Ala	Pro Gly Lys	
1175 1180	1185		
gtc tgg tgg cggttgc aag	acc tgc tac cac atc	gtg gag cac	3609
Val Trp Trp Arg Leu Arg Lys	Thr Cys Tyr His Ile	Val Glu His	
1190 1195	1200		
agc tgg ttc gag aca ttc atc	atc ttc atg atc cta	ctc agc agt	3654
Ser Trp Phe Glu Thr Phe Ile	Ile Phe Met Ile Leu	Leu Ser Ser	
1205 1210	1215		
gga gcg ctg gcc ttc gag gac	atc tac cta gag gag	cgg aag acc	3699
Gly Ala Leu Ala Phe Glu Asp	Ile Tyr Leu Glu Glu	Arg Lys Thr	
1220 1225	1230		
atc aag gtt ctg ctt gag tat	gcc gac aag atg ttc	aca tat gtc	3744
Ile Lys Val Leu Leu Glu Tyr	Ala Asp Lys Met Phe	Thr Tyr Val	
1235 1240	1245		
tccgtcctg gag atg ctg ctc	aag tgg gtg gcc tac	ggc ttc aag	3789
Phe Val Leu Glu Met Leu Leu	Lys Trp Val Ala Tyr	Gly Phe Lys	
1250 1255	1260		
aag tac ttc acc aat gcc tgg	tgc tgg ctc gac ttc	ctc atc gta	3834
Lys Tyr Phe Thr Asn Ala Trp	Cys Trp Leu Asp Phe	Leu Ile Val	
1265 1270	1275		
gac gtc tct ctg gtc agc ctg	gtg gcc aac acc ctg	ggc ttt gcc	3879
Asp Val Ser Leu Val Ser Leu	Val Ala Asn Thr Leu	Gly Phe Ala	
1280 1285	1290		
gag atg ggt ccc atc aag tca	ctg cgg acg ctg cgt	gca ctc cgt	3924
Glu Met Gly Pro Ile Lys Ser	Leu Arg Thr Leu Arg	Ala Leu Arg	
1295 1300	1305		
cct ctg aga gct ctg tca cga	ttt gag ggc atg agg	gtg gtg gtc	3969
Pro Leu Arg Ala Leu Ser Arg	Phe Glu Gly Met Arg	Val Val Val	
1310 1315	1320		
aat gcc ctg gtg ggc gcc atc	ccg tcc atc atg aac	gtc ctc ctc	4014
Asn Ala Leu Val Gly Ala Ile	Pro Ser Ile Met Asn	Val Leu Leu	
1325 1330	1335		
gtc tgc ctc atc ttc tgg ctc	atc ttc agc atc atg	ggc gtg aac	4059
Val Cys Leu Ile Phe Trp Leu	Ile Phe Ser Ile Met	Gly Val Asn	
1340 1345	1350		
ctc ttt gcg ggg aag ttt ggg	agg tgc atc aac cag	aca gag gga	4104
Leu Phe Ala Gly Lys Phe Gly	Arg Cys Ile Asn Gln	Thr Glu Gly	
1355 1360	1365		
gac ttg cct ttg aac tac acc	atc gtg aac aac aag	agc cag tgt	4149
Asp Leu Pro Leu Asn Tyr Thr	Ile Val Asn Asn Lys	Ser Gln Cys	

1370	1375	1380	
gag tcc ttg aac ttg acc gga Glu Ser Leu Asn Leu Thr Gly 1385	gaa ttg tac tgg acc aag gtg aaa Glu Leu Tyr Trp Thr Lys Val Lys 1390	1395	4194
gtc aac ttt gac aac gtg ggg Val Asn Phe Asp Asn Val Gly 1400	gcc ggg tac ctg gcc ctt ctg cag Ala Gly Tyr Leu Ala Leu Leu Gln 1405	1410	4239
gtg gca aca ttt aaa ggc tgg Val Ala Thr Phe Lys Gly Trp 1415	atg gac att atg tat gca gct gtg Met Asp Ile Met Tyr Ala Ala Val 1420	1425	4284
gac tcc agg ggg tat gaa gag Asp Ser Arg Gly Tyr Glu Glu 1430	cag cct cag tgg gaa tac aac ctc Gln Pro Gln Trp Glu Tyr Asn Leu 1435	1440	4329
tac atg tac atc tat ttt gtc Tyr Met Tyr Ile Tyr Phe Val 1445	att ttc atc atc ttt ggg tct ttc Ile Phe Ile Ile Phe Gly Ser Phe 1450	1455	4374
ttc acc ctg aac ctc ttt att Phe Thr Leu Asn Leu Phe Ile 1460	ggt gtc atc att gac aac ttc aac Gly Val Ile Ile Asp Asn Phe Asn 1465	1470	4419
caa cag aag aaa aag tta ggg Gln Gln Lys Lys Lys Leu Gly 1475	ggc cag gac atc ttc atg aca gag Gly Gln Asp Ile Phe Met Thr Glu 1480	1485	4464
gag cag aag aag tac tac aat Glu Gln Lys Lys Tyr Tyr Asn 1490	gcc atg aag aag ctg ggc tcc aag Ala Met Lys Lys Leu Gly Ser Lys 1495	1500	4509
aag ccc cag aag ccc atc cca Lys Pro Gln Lys Pro Ile Pro 1505	cgg ccc ctg aac aag tac cag ggc Arg Pro Leu Asn Lys Tyr Gln Gly 1510	1515	4554
ttc ata ttc gac att gtg acc Phe Ile Phe Asp Ile Val Thr 1520	aag cag gcc ttt gac gtc acc atc Lys Gln Ala Phe Asp Val Thr Ile 1525	1530	4599
atg ttt ctg atc tgc ttg aat Met Phe Leu Ile Cys Leu Asn 1535	atg gtg acc atg atg gtg gag aca Met Val Thr Met Met Val Glu Thr 1540	1545	4644
gat gac caa agt cct gag aaa Asp Asp Gln Ser Pro Glu Lys 1550	atc aac atc ttg gcc aag atc aac Ile Asn Ile Leu Ala Lys Ile Asn 1555	1560	4689
ctg ctc ttt gtg gcc atc ttc Leu Leu Phe Val Ala Ile Phe 1565	aca ggc gag tgt att gtc aag ctg Thr Gly Glu Cys Ile Val Lys Leu 1570	1575	4734
gct gcc ctg cgc cac tac tac Ala Ala Leu Arg His Tyr Tyr 1580	ttc acc aac agc tgg aat atc ttc Phe Thr Asn Ser Trp Asn Ile Phe 1585	1590	4779
gac ttc gtg gtt gtc atc ctc Asp Phe Val Val Val Ile Leu 1595	tcc atc gtg ggc act gtg ctc tcg Ser Ile Val Gly Thr Val Leu Ser 1600	1605	4824
gac atc atc cag aag tac ttc gac atc	ttc tcc ccg acg ctc ttc cga gtc		4869

Asp	Ile	Ile	Gln	Lys	Tyr	Phe	Phe	Ser	Pro	Thr	Leu	Phe	Arg	Val		
1610						1615						1620				
atc	cgc	ctg	gcc	cga	ata	ggc	cgc	atc	ctc	aga	ctg	atc	cga	ggg	4914	
Ile	Arg	Leu	Ala	Arg	Ile	Gly	Arg	Ile	Leu	Arg	Leu	Ile	Arg	Gly		
1625						1630						1635				
gcc	aag	ggg	atc	cgc	acg	ctg	ctc	ttt	gcc	ctc	atg	atg	tcc	ctg	4959	
Ala	Lys	Gly	Ile	Arg	Thr	Leu	Leu	Phe	Ala	Leu	Met	Met	Ser	Leu		
1640						1645						1650				
cct	gcc	ctc	ttc	aac	atc	ggg	ctg	ctg	ctc	ttc	ctc	gtc	atg	ttc	5004	
Pro	Ala	Leu	Phe	Asn	Ile	Gly	Leu	Leu	Leu	Phe	Leu	Val	Met	Phe		
1655						1660						1665				
atc	tac	tcc	atc	ttt	ggc	atg	gcc	aac	ttc	gct	tat	gtc	aag	tgg	5049	
Ile	Tyr	Ser	Ile	Phe	Gly	Met	Ala	Asn	Phe	Ala	Tyr	Val	Lys	Trp		
1670						1675						1680				
gag	gct	ggc	atc	gac	gac	atg	ttc	aac	ttc	cag	acc	ttc	gcc	aac	5094	
Glu	Ala	Gly	Ile	Asp	Asp	Met	Phe	Asn	Phe	Gln	Thr	Phe	Ala	Asn		
1685						1690						1695				
agc	atg	ctg	tgc	ctc	ttc	cag	atc	acc	acg	tcg	gcc	ggc	tgg	gat	5139	
Ser	Met	Leu	Cys	Leu	Phe	Gln	Ile	Thr	Thr	Ser	Ala	Gly	Trp	Asp		
1700						1705						1710				
ggc	ctc	ctc	agc	ccc	atc	ctc	aac	act	ggg	ccg	ccc	tac	tgc	gac	5184	
Gly	Leu	Leu	Ser	Pro	Ile	Leu	Asn	Thr	Gly	Pro	Pro	Tyr	Cys	Asp		
1715						1720						1725				
ccc	act	ctg	ccc	aac	agc	aat	ggc	tct	cg	ggg	gac	tgc	ggg	agc	5229	
Pro	Thr	Leu	Pro	Asn	Ser	Asn	Gly	Ser	Arg	Gly	Asp	Cys	Gly	Ser		
1730						1735						1740				
cca	gcc	gtg	ggc	atc	ctc	ttc	ttc	acc	acc	tac	atc	atc	atc	tcc	5274	
Pro	Ala	Val	Gly	Ile	Leu	Phe	Phe	Thr	Thr	Tyr	Ile	Ile	Ile	Ile		
1745						1750						1755				
ttc	ctc	atc	gtg	gtc	aac	atg	tac	att	gcc	atc	atc	ctg	gag	aac	5319	
Phe	Leu	Ile	Val	Val	Asn	Met	Tyr	Ile	Ala	Ile	Ile	Leu	Glu	Asn		
1760						1765						1770				
ttc	agc	gtg	gcc	acg	gag	gag	agc	acc	gag	ccc	ctg	agt	gag	gac	5364	
Phe	Ser	Val	Ala	Thr	Glu	Glu	Ser	Thr	Glu	Pro	Leu	Ser	Glu	Asp		
1775						1780	.					1785				
gac	ttc	gat	atg	ttc	tat	gag	atc	tgg	gag	aaa	ttt	gac	cca	gag	5409	
Asp	Phe	Asp	Met	Phe	Tyr	Glu	Ile	Trp	Glu	Lys	Phe	Asp	Pro	Glu		
1790						1795						1800				
gcc	act	cag	ttt	att	gag	tat	tcg	gtc	ctg	tct	gac	ttt	gcc	gat	5454	
Ala	Thr	Gln	Phe	Ile	Glu	Tyr	Ser	Val	Leu	Ser	Asp	Phe	Ala	Asp		
1805						1810						1815				
gcc	ctg	tct	gag	cca	ctc	cgt	atc	gcc	aag	ccc	aac	cag	ata	agc	5499	
Ala	Leu	Ser	Glu	Pro	Leu	Arg	Ile	Ala	Lys	Pro	Asn	Gln	Ile	Ser		
1820						1825						1830				
ctc	atc	aac	atg	gac	ctg	ccc	atg	gtg	agt	ggg	gac	cgc	atc	cat	5544	
Leu	Ile	Asn	Met	Asp	Leu	Pro	Met	Val	Ser	Gly	Asp	Arg	Ile	His		
1835						1840						1845				

tgc atg gac att ctc ttt gcc	ttc acc aaa agg gtc	ctg ggg gag	5589
Cys Met Asp Ile Leu Phe Ala	Phe Thr Lys Arg Val	Leu Gly Glu	
1850	1855	1860	
tct ggg gag atg gac gcc ctg	aag atc cag atg gag	gag aag ttc	5634
Ser Gly Glu Met Asp Ala Leu	Lys Ile Gln Met Glu	Glu Lys Phe	
1865	1870	1875	
atg gca gcc aac cca tcc aag	atc tcc tac gag ccc	atc acc acc	5679
Met Ala Ala Asn Pro Ser Lys	Ile Ser Tyr Glu Pro	Ile Thr Thr	
1880	1885	1890	
aca ctc cgg cgc aag cac gaa	gag gtg tcg gcc atg	gtt atc cag	5724
Thr Leu Arg Arg Lys His Glu	Glu Val Ser Ala Met	Val Ile Gln	
1895	1900	1905	
aga gcc ttc cgc agg cac ctg	ctg caa cgc tct ttg	aag cat gcc	5769
Arg Ala Phe Arg Arg His Leu	Leu Gln Arg Ser Leu	Lys His Ala	
1910	1915	1920	
tcc ttc ctc ttc cgt cag cag	gcg ggc agc ggc ctc	tcc gaa gag	5814
Ser Phe Leu Phe Arg Gln Gln	Ala Gly Ser Gly Leu	Ser Glu Glu	
1925	1930	1935	
gat gcc cct gag cga gag ggc	ctc atc gcc tac gtg	atg agt gag	5859
Asp Ala Pro Glu Arg Glu Gly	Leu Ile Ala Tyr Val	Met Ser Glu	
1940	1945	1950	
aac ttc tcc cga ccc ctt ggc	cca ccc tcc agc tcc	tcc atc tcc	5904
Asn Phe Ser Arg Pro Leu Gly	Pro Pro Ser Ser Ser	Ser Ile Ser	
1955	1960	1965	
tcc act tcc ttc cca ccc tcc	tat gac agt gtc act	aga gcc acc	5949
Ser Thr Ser Phe Pro Pro Ser	Tyr Asp Ser Val Thr	Arg Ala Thr	
1970	1975	1980	
agc gat aac ctc cag gtg cgg	ggg tct gac tac agc	cac agt gaa	5994
Ser Asp Asn Leu Gln Val Arg	Gly Ser Asp Tyr Ser	His Ser Glu	
1985	1990	1995	
gat ctc gcc gac ttc ccc cct	tct ccg gac agg gac	cgt gag tcc	6039
Asp Leu Ala Asp Phe Pro Pro	Ser Pro Asp Arg Asp	Arg Glu Ser	
2000	2005	2010	
atc gtg tgaggctcgg cctggctggc	caggacacac tgaaaagcag	ccttttcac	6095
Ile Val			
2015			
catggcaaacc taaaatgcag tcagtcamaa accagcctgg	ggccttcctg	gctttggag	6155
taagaaatgg gcct			6169

<210> 8  
<211> 2015  
<212> PRT  
<213> Homo sapiens

<400> 8

Met Ala Asn Phe Leu Leu Pro Arg Gly Thr Ser Ser Phe Arg Arg Phe  
1 5 10 15

Thr Arg Glu Ser Leu Ala Ala Ile Glu Lys Arg Met Ala Glu Lys Gln  
20 25 30

Ala Arg Gly Ser Thr Thr Leu Gln Glu Ser Arg Glu Gly Leu Pro Glu  
35 40 45

Glu Glu Ala Pro Arg Pro Gln Leu Asp Leu Gln Ala Ser Lys Lys Leu  
50 55 60

Pro Asp Leu Tyr Gly Asn Pro Pro Gln Glu Leu Ile Gly Glu Pro Leu  
65 70 75 80

Glu Asp Leu Asp Pro Phe Tyr Ser Thr Gln Lys Thr Phe Ile Val Leu  
85 90 95

Asn Lys Gly Lys Thr Ile Phe Arg Phe Ser Ala Thr Asn Ala Leu Tyr  
100 105 110

Val Leu Ser Pro Phe His Pro Ile Arg Arg Ala Ala Val Lys Ile Leu  
115 120 125

Val His Ser Leu Phe Asn Met Leu Ile Met Cys Thr Ile Leu Thr Asn  
130 135 140

Cys Val Phe Met Ala Gln His Asp Pro Pro Pro Trp Thr Lys Tyr Val  
145 150 155 160

Glu Tyr Thr Phe Thr Ala Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile  
165 170 175

Leu Ala Arg Gly Phe Cys Leu His Ala Phe Thr Phe Leu Arg Asp Pro  
180 185 190

Trp Asn Trp Leu Asp Phe Ser Val Ile Ile Met Ala Tyr Thr Thr Glu  
195 200 205

Phe Val Asp Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu  
210 215 220

Arg Ala Leu Lys Thr Ile Ser Val Ile Ser Gly Leu Lys Thr Ile Val  
225 230 235 240

Gly Ala Leu Ile Gln Ser Val Lys Lys Leu Ala Asp Val Met Val Leu  
245 250 255

Thr Val Phe Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe  
260 265 270

Met Gly Asn Leu Arg His Lys Cys Val Arg Asn Phe Thr Ala Leu Asn  
275 280 285

Gly Thr Asn Gly Ser Val Glu Ala Asp Gly Leu Val Trp Glu Ser Leu  
290 295 300

Asp Leu Tyr Leu Ser Asp Pro Glu Asn Tyr Leu Leu Lys Asn Gly Thr  
305 310 315 320

Ser Asp Val Leu Leu Cys Gly Asn Ser Ser Asp Ala Gly Thr Cys Pro  
325 330 335

Glu Gly Tyr Arg Cys Leu Lys Ala Gly Glu Asn Pro Asp His Gly Tyr  
340 345 350

Thr Ser Phe Asp Ser Phe Ala Trp Ala Phe Leu Ala Leu Phe Arg Leu  
355 360 365

Met Thr Gln Asp Cys Trp Glu Arg Leu Tyr Gln Gln Thr Leu Arg Ser  
370 375 380

Ala Gly Lys Ile Tyr Met Ile Phe Phe Met Leu Val Ile Phe Leu Gly  
385 390 395 400

Ser Phe Tyr Leu Val Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr  
405 410 415

Glu Glu Gln Asn Gln Ala Thr Ile Ala Glu Thr Glu Glu Lys Glu Lys  
420 425 430

Arg Phe Gln Glu Ala Met Glu Met Leu Lys Lys Glu His Glu Ala Leu  
435 440 445

Thr Ile Arg Gly Val Asp Thr Val Ser Arg Ser Ser Leu Glu Met Ser  
450 455 460

Pro Leu Ala Pro Val Asn Ser His Glu Arg Arg Ser Lys Arg Arg Lys  
465 470 475 480

Arg Met Ser Ser Gly Thr Glu Glu Cys Gly Glu Asp Arg Leu Pro Lys  
485 490 495

Ser Asp Ser Glu Asp Gly Pro Arg Ala Met Asn His Leu Ser Leu Thr  
500 505 510

Arg Gly Leu Ser Arg Thr Ser Met Lys Pro Arg Ser Ser Arg Gly Ser

515

520

525

Ile Phe Thr Phe Arg Arg Arg Asp Leu Gly Ser Glu Ala Asp Phe Ala  
530 535 540

Asp Asp Glu Asn Ser Thr Ala Gly Glu Ser Glu Ser His Arg Thr Ser  
545 550 555 560

Leu Leu Val Pro Trp Pro Leu Arg Arg Thr Ser Ala Gln Gly Gln Pro  
565 570 575

Ser Pro Gly Thr Ser Ala Pro Gly His Ala Leu His Gly Lys Lys Asn  
580 585 590

Ser Thr Val Asp Cys Asn Gly Val Val Ser Leu Leu Gly Ala Gly Asp  
595 600 605

Pro Glu Ala Thr Ser Pro Gly Ser His Leu Leu Arg Pro Val Met Leu  
610 615 620

Glu His Pro Pro Asp Thr Thr Pro Ser Glu Glu Pro Gly Gly Pro  
625 630 635 640

Gln Met Leu Thr Ser Gln Ala Pro Cys Val Asp Gly Phe Glu Glu Pro  
645 650 655

Gly Ala Arg Gln Arg Ala Leu Ser Ala Val Ser Val Leu Thr Ser Ala  
660 665 670

Leu Glu Glu Leu Glu Glu Ser Arg His Lys Cys Pro Pro Cys Trp Asn  
675 680 685

Arg Leu Ala Gln Arg Tyr Leu Ile Trp Glu Cys Cys Pro Leu Trp Met  
690 695 700

Ser Ile Lys Gln Gly Val Lys Leu Val Val Met Asp Pro Phe Thr Asp  
705 710 715 720

Leu Thr Ile Thr Met Cys Ile Val Leu Asn Thr Leu Phe Met Ala Leu  
725 730 735

Glu His Tyr Asn Met Thr Ser Glu Phe Glu Glu Met Leu Gln Val Gly  
740 745 750

Asn Leu Val Phe Thr Gly Ile Phe Thr Ala Glu Met Thr Phe Lys Ile  
755 760 765

Ile Ala Leu Asp Pro Tyr Tyr Tyr Phe Gln Gln Gly Trp Asn Ile Phe  
770 775 780

Asp Ser Ile Ile Val Ile Leu Ser Leu Met Glu Leu Gly Leu Ser Arg  
785 790 795 800

Met Ser Asn Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe  
805 810 815

Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Thr Leu Ile Lys Ile Ile  
820 825 830

Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile  
835 840 845

Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Asn  
850 855 860

Tyr Ser Glu Leu Arg Asp Ser Asp Ser Gly Leu Leu Pro Arg Trp His  
865 870 875 880

Met Met Asp Phe Phe His Ala Phe Leu Ile Ile Phe Arg Ile Leu Cys  
885 890 895

Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ser Gly Gln  
900 905 910

Ser Leu Cys Leu Leu Val Phe Leu Leu Val Met Val Ile Gly Asn Leu  
915 920 925

Val Val Leu Asn Leu Phe Leu Ala Leu Leu Ser Ser Phe Ser Ala  
930 935 940

Asp Asn Leu Thr Ala Pro Asp Glu Asp Arg Glu Met Asn Asn Leu Gln  
945 950 955 960

Leu Ala Leu Ala Arg Ile Gln Arg Gly Leu Arg Phe Val Lys Arg Thr  
965 970 975

Thr Trp Asp Phe Cys Cys Gly Leu Leu Arg Gln Arg Pro Gln Lys Pro  
980 985 990

Ala Ala Leu Ala Ala Gln Gly Gln Leu Pro Ser Cys Ile Ala Thr Pro  
995 1000 1005

Tyr Ser Pro Pro Pro Pro Glu Thr Glu Lys Val Pro Pro Thr Arg  
1010 1015 1020

Lys Glu Thr Arg Phe Glu Glu Gly Glu Gln Pro Gly Gln Gly Thr  
1025 1030 1035

Pro Gly Asp Pro Glu Pro Val Cys Val Pro Ile Ala Val Ala Glu  
1040 1045 1050

Ser Asp Thr Asp Asp Gln Glu Glu Asp Glu Glu Asn Ser Leu Gly  
1055 1060 1065

Thr Glu Glu Glu Ser Ser Lys Gln Glu Ser Gln Pro Val Ser Gly  
1070 1075 1080

Gly Pro Glu Ala Pro Pro Asp Ser Arg Thr Trp Ser Gln Val Ser  
1085 1090 1095

Ala Thr Ala Ser Ser Glu Ala Glu Ala Ser Ala Ser Gln Ala Asp  
1100 1105 1110

Trp Arg Gln Gln Trp Lys Ala Glu Pro Gln Ala Pro Gly Cys Gly  
1115 1120 1125

Glu Thr Pro Glu Asp Ser Cys Ser Glu Gly Ser Thr Ala Asp Met  
1130 1135 1140

Thr Asn Thr Ala Glu Leu Leu Glu Gln Ile Pro Asp Leu Gly Gln  
1145 1150 1155

Asp Val Lys Asp Pro Glu Asp Cys Phe Thr Glu Gly Cys Val Arg  
1160 1165 1170

Arg Cys Pro Cys Cys Ala Val Asp Thr Thr Gln Ala Pro Gly Lys  
1175 1180 1185

Val Trp Trp Arg Leu Arg Lys Thr Cys Tyr His Ile Val Glu His  
1190 1195 1200

Ser Trp Phe Glu Thr Phe Ile Ile Phe Met Ile Leu Leu Ser Ser  
1205 1210 1215

Gly Ala Leu Ala Phe Glu Asp Ile Tyr Leu Glu Glu Arg Lys Thr  
1220 1225 1230

Ile Lys Val Leu Leu Glu Tyr Ala Asp Lys Met Phe Thr Tyr Val  
1235 1240 1245

Phe Val Leu Glu Met Leu Leu Lys Trp Val Ala Tyr Gly Phe Lys  
1250 1255 1260

Lys Tyr Phe Thr Asn Ala Trp Cys Trp Leu Asp Phe Leu Ile Val  
1265 1270 1275

Asp Val Ser Leu Val Ser Leu Val Ala Asn Thr Leu Gly Phe Ala  
1280 1285 1290

Glu Met Gly Pro Ile Lys Ser Leu Arg Thr Leu Arg Ala Leu Arg  
1295 1300 1305

Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met Arg Val Val Val  
1310 1315 1320

Asn Ala Leu Val Gly Ala Ile Pro Ser Ile Met Asn Val Leu Leu  
1325 1330 1335

Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly Val Asn  
1340 1345 1350

Leu Phe Ala Gly Lys Phe Gly Arg Cys Ile Asn Gln Thr Glu Gly  
1355 1360 1365

Asp Leu Pro Leu Asn Tyr Thr Ile Val Asn Asn Lys Ser Gln Cys  
1370 1375 1380

Glu Ser Leu Asn Leu Thr Gly Glu Leu Tyr Trp Thr Lys Val Lys  
1385 1390 1395

Val Asn Phe Asp Asn Val Gly Ala Gly Tyr Leu Ala Leu Leu Gln  
1400 1405 1410

Val Ala Thr Phe Lys Gly Trp Met Asp Ile Met Tyr Ala Ala Val  
1415 1420 1425

Asp Ser Arg Gly Tyr Glu Glu Gln Pro Gln Trp Glu Tyr Asn Leu  
1430 1435 1440

Tyr Met Tyr Ile Tyr Phe Val Ile Phe Ile Ile Phe Gly Ser Phe  
1445 1450 1455

Phe Thr Leu Asn Leu Phe Ile Gly Val Ile Ile Asp Asn Phe Asn  
1460 1465 1470

Gln Gln Lys Lys Lys Leu Gly Gly Gln Asp Ile Phe Met Thr Glu  
1475 1480 1485

Glu Gln Lys Lys Tyr Tyr Asn Ala Met Lys Lys Leu Gly Ser Lys

1490                    1495                    1500

Lys Pro Gln Lys Pro Ile Pro Arg Pro Leu Asn Lys Tyr Gln Gly  
1505                    1510                    1515

Phe Ile Phe Asp Ile Val Thr Lys Gln Ala Phe Asp Val Thr Ile  
1520                    1525                    1530

Met Phe Leu Ile Cys Leu Asn Met Val Thr Met Met Val Glu Thr  
1535                    1540                    1545

Asp Asp Gln Ser Pro Glu Lys Ile Asn Ile Leu Ala Lys Ile Asn  
1550                    1555                    1560

Leu Leu Phe Val Ala Ile Phe Thr Gly Glu Cys Ile Val Lys Leu  
1565                    1570                    1575

Ala Ala Leu Arg His Tyr Tyr Phe Thr Asn Ser Trp Asn Ile Phe .  
1580                    1585                    1590

Asp Phe Val Val Val Ile Leu Ser Ile Val Gly Thr Val Leu Ser  
1595                    1600                    1605

Asp Ile Ile Gln Lys Tyr Phe Phe Ser Pro Thr Leu Phe Arg Val  
1610                    1615                    1620

Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Ile Arg Gly  
1625                    1630                    1635

Ala Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu  
1640                    1645                    1650

Pro Ala Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met Phe  
1655                    1660                    1665

Ile Tyr Ser Ile Phe Gly Met Ala Asn Phe Ala Tyr Val Lys Trp  
1670                    1675                    1680

Glu Ala Gly Ile Asp Asp Met Phe Asn Phe Gln Thr Phe Ala Asn  
1685                    1690                    1695

Ser Met Leu Cys Leu Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp  
1700                    1705                    1710

Gly Leu Leu Ser Pro Ile Leu Asn Thr Gly Pro Pro Tyr Cys Asp  
1715                    1720                    1725

Pro Thr Leu Pro Asn Ser Asn Gly Ser Arg Gly Asp Cys Gly Ser  
1730 1735 1740

Pro Ala Val Gly Ile Leu Phe Phe Thr Thr Tyr Ile Ile Ile Ser  
1745 1750 1755

Phe Leu Ile Val Val Asn Met Tyr Ile Ala Ile Ile Leu Glu Asn  
1760 1765 1770

Phe Ser Val Ala Thr Glu Glu Ser Thr Glu Pro Leu Ser Glu Asp  
1775 1780 1785

Asp Phe Asp Met Phe Tyr Glu Ile Trp Glu Lys Phe Asp Pro Glu  
1790 1795 1800

Ala Thr Gln Phe Ile Glu Tyr Ser Val Leu Ser Asp Phe Ala Asp  
1805 1810 1815

Ala Leu Ser Glu Pro Leu Arg Ile Ala Lys Pro Asn Gln Ile Ser  
1820 1825 1830

Leu Ile Asn Met Asp Leu Pro Met Val Ser Gly Asp Arg Ile His  
1835 1840 1845

Cys Met Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly Glu  
1850 1855 1860

Ser Gly Glu Met Asp Ala Leu Lys Ile Gln Met Glu Glu Lys Phe  
1865 1870 1875

Met Ala Ala Asn Pro Ser Lys Ile Ser Tyr Glu Pro Ile Thr Thr  
1880 1885 1890

Thr Leu Arg Arg Lys His Glu Glu Val Ser Ala Met Val Ile Gln  
1895 1900 1905

Arg Ala Phe Arg Arg His Leu Leu Gln Arg Ser Leu Lys His Ala  
1910 1915 1920

Ser Phe Leu Phe Arg Gln Gln Ala Gly Ser Gly Leu Ser Glu Glu  
1925 1930 1935

Asp Ala Pro Glu Arg Glu Gly Leu Ile Ala Tyr Val Met Ser Glu  
1940 1945 1950

Asn Phe Ser Arg Pro Leu Gly Pro Pro Ser Ser Ser Ser Ile Ser  
1955 1960 1965

Ser Thr Ser Phe Pro Pro Ser Tyr Asp Ser Val Thr Arg Ala Thr  
1970 1975 1980

Ser Asp Asn Leu Gln Val Arg Gly Ser Asp Tyr Ser His Ser Glu  
1985 1990 1995

Asp Leu Ala Asp Phe Pro Pro Ser Pro Asp Arg Asp Arg Glu Ser  
2000 2005 2010

Ile Val  
2015

<210> 9  
<211> 23  
<212> DNA  
<213> Artificial

<220>  
<223> PCR primer

<400> 9  
gccagtggt caaaagacag gct

23

<210> 10  
<211> 21  
<212> DNA  
<213> Artificial

<220>  
<223> PCR primer

<400> 10  
cctgggcact ggtccggcgc a

21

<210> 11  
<211> 22  
<212> DNA  
<213> Artificial

<220>  
<223> PCR primer

<400> 11  
caccacacat cactgctgg gc

22

<210> 12  
<211> 24  
<212> DNA  
<213> Artificial

<220>  
<223> PCR primer

<400> 12  
ggaactgctg atcagttgg gaga

24

```

<210> 13
<211> 22
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 13
gcccgaggcc agctgcccag ct          22

<210> 14
<211> 26
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 14
ctgtatatgt aggtgcctta tacatg      26

<210> 15
<211> 20
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 15
ccaagaagag gatgaggaga             20

<210> 16
<211> 18
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 16
gaggcagtgcg ctgacacc               18

<210> 17
<211> 22
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(22)
<223> Acceptor site sequence for exon 18 of SCN5A

<400> 17
ggggtctttt cagcaggaat cc          22

```

<210> 18  
<211> 31  
<212> DNA  
<213> Homo sapiens

<220>  
<221> Unsure  
<222> (20)..(20)  
<223> Unsure about the exact nucleotide from sequencing data

<220>  
<221> misc\_feature  
<222> (20)..(20)  
<223> n is a, c, g, or t

<220>  
<221> Unsure  
<222> (22)..(23)  
<223> Unsure about the exact nucleotide from sequencing data

<220>  
<221> misc\_feature  
<222> (22)..(23)  
<223> n is a, c, g, or t

<220>  
<221> Unsure  
<222> (31)..(31)  
<223> Unsure about the exact nucleotide from sequencing data

<220>  
<221> misc\_feature  
<222> (31)..(31)  
<223> n is a, c, g, or t

<400> 18  
ggagtccagc aagcaggaan annaccatgc n

31

<210> 19  
<211> 45  
<212> DNA  
<213> Homo sapiens

<220>  
<221> exon  
<222> (1)..(27)  
<223> Partial sequence of Exon 17 of SCN5A

<220>  
<221> exon  
<222> (28)..(45)  
<223> Partial sequence of Exon 18 of SCN5A

<400> 19  
tgg gca cgg agg gag tcc agc aag cag gaa tcc cag cct gtg tcc  
Trp Ala Arg Arg Glu Ser Ser Lys Gln Glu Ser Gln Pro Val Ser  
1 5 10 15

45

<210> 20  
<211> 48  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)..(27)  
<223> Partial sequence of Exon 17 of SCN5A

<220>  
<221> misc\_feature  
<222> (27)..(48)  
<223> Partial sequence of Exon 18 of SCN5A

<400> 20  
tgggcacgga gggagtccag caagcagcag gaatcccagc ctgtgtcc 48

<210> 21  
<211> 57  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)..(57)  
<223> Partial genomic DNA sequence of SCN5A

<400> 21  
gagtcacgca agcaggtggg ccctgggtct tttcagcagg aatcccagcc tgtgtcc 57